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East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

No. 2232

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GOVERNMENT INCENTIVES AIM AT HIGHER MEAT OUTPUT FROM PRIVATE FARM PLOTS

Private Plots Given New Incentives

Sofia ZEMEDELSKO ZNAME in Bulgarian 18 Dec 81 pp 1-2

[BTA report by G. Kotarov]

[Text] Sofia, 17 December. The government's concern for strengthening and developing private farm plots has been manifested yet once again. Today, the Council of Ministers passed Decree No 50 on increasing the production of livestock products and regulating grain sales for use by private plots.

The explanation of the document emphasizes that the purpose of the new regulations is to enhance the material incentive for increasing the production of livestock products, to create better conditions for the effective utilization of feed grain and to improve the system for purchasing goods produced by private plots.

The Council of Ministers decree stipulates that starting with 21 December 1981 the purchase prices of animal husbandry goods produced by private plots and with their own feeds will be as follows: hogs for butchering, 2,500 leva per ton in live weight; pigs no heavier than 20 kg, 3.50 leva per kg in live weight; and calves, from 2,400 to 4,040 leva per ton in live weight, depending on age, weight, breed and whether raised for export or not. Changes have been made in poultry purchase prices as well, based on quality and age. The purchase prices of chicks, pullets, turkeys, ducks and geese will range from 1,440 to 2,540 leva per ton in live weight. Depending on the time of year, the purchase price per 1,000 chicken eggs will range from 110 to 120 leva.

The funds for the increases in purchase prices and the differential between purchase prices and the price at which young pigs are sold to the farmers will be provided by the state budget.

The decree emphasizes that grain grown on private plots will be used for raising livestock and poultry while surplus grain will be purchased exclusively by the Grain Foods and Fodder Industry DSO [State Economic Trust] at 200 leva per ton. A separate account will be maintained for this grain which will be sold only to the private and auxiliary farms and the purchasing and fattening depots. Priority will be given to the areas in which the grain was purchased. As of 1 January 1982, agroindustrial complexes, okrug cooperative unions and consumer cooperatives will be forbidden to purchase food and feed grain from private plots for their own use.

The okrug people's councils and agroindustrial combines will allocate at no charge to workers, employees and pensioners who are willing to raise livestock with their own fodder neglected and unused land and will assist them in its cultivation.

The government document emphasizes that in order to encourage the production of livestock goods, the public farms will allocate to the population 100,000 fertilized pigs during the first quarter of 1982. The new government document indicates the areas in the private plots which offer possibilities of increasing output and guarantees that the necessary conditions for their realization will be provided.

The decree puts an end to the current practice of using fodder grown in private plots by other organizations. In the future, such fodder will be used exclusively for raising livestock and poultry by the private sector. This stipulation and the new purchase prices will unquestionably encourage the farmers to raise livestock with their own fodder.

The government's decision is significant from another viewpoint as well. It helps to increase cooperation between private farms and the cooperative sector. The intensification of this integration plays an exceptionally important role in turning the private plots into a stable reserve for supplying the population with more and better quality products.

It is natural to expect that the implementation of the decree will contribute to increasing the contribution of the private plots to the population self-sufficiency system and hence to increasing market abundance and variety.

Council of Ministers Decree

Sofia KOOPERATIVNO ŠELO in Bulgarian 18 Dec 81 pp 1-2

[Text] The Council of Ministers decrees:

Article 1. (1) Approves as of 21 December 1981 purchase prices of livestock products from private farm plots which use their own feeds as follows:

1. Hogs for butchering: 2,500 leva per ton live weight;

2. Pigs weighing no more than 20 kg: 3.50 leva per kg live weight.

	Per ton live weight, leva
3. Calves, live weight:	
a. more than 450 kg, male and more than 390 kg, female	3,160
b. from 400 to 450 kg, male and 350-390, female	2,770
c. 150-400 kg, male and 150-350 kg, female	2,400
4. Calves, under 6 monthsof age, purchased for export	4,040
5. Calves of the Iskursko Govedo, Mestno Sivo,	

Jersey, Rodopsko Govedo and crossbreeds, live weight:

a. male and female, more than 150 kg.....3,160
b. male and female, 150 kg or less.....2,770

6. Purebred calves, all imported breeds for beef, Bulgarian Siementhal and all their crossbreeds, male or female.....3,400

7. Buffalo calves, live weight:

a. more than 400 kg, male and more than 350 kg, female.....3,160
b. 300-400 kg, male and 300-350 kg, female.....2,770
c. 150-300 kg, male and female.....2,400
d. under 6 months old, purchased for export.....4,040

8. Poultry:

a. chicks, pullets and cockerells.....1,600
b. hens, first grade.....1,540
c. hens, second grade.....1,440
d. roosters.....1,440
e. turkeys, male and female.....2,540
f. geese, hens and drakes.....2,520
g. ducks, male and female.....2,240

9. Eggs, hen's, for table use, leva per piece.....1,000

	From 1 April to 30 Sept	From 1 Oct to 31 March
a. eggs, clean, first and second grade	110	120
b. eggs, unwashed, first and second grade	80	90
c. eggs, cracked, small, 1st and 2nd grade	75	75
d. eggs, small, unwashed and small, cracked, first and second grade	65	65
e. eggs, undersized, 1st and 2nd grade	60	60
f. eggs, undersized, unwashed and cracked, first and second grade	50	50

(2) The funds for the increase in the purchase prices and the differential between the purchase price and the price at which young pigs are sold to the farmers will be provided by the state budget.

Article 2. (1) The grain produced by the private plots will be used for raising livestock and poultry. The surplus grain will be purchased exclusively by the Grain Foods and Fodder Industry DSO at 200 leva per ton. This grain will be kept in a separate account and will be sold only to private and auxiliary farms and purchasing and fattening depots at cost and with priority to areas in which the grain was purchased.

(2) The purchasing of grain from private plots and the supply of private plots with mixed feeds shall be organized by settlement. The Grain Foods and Fodder Industry DSO may contract with the okrug agroindustrial unions, agroindustrial complexes and okrug cooperative unions to perform such activities.

(3) The agroindustrial complexes, okrug cooperative unions and consumer cooperatives shall be forbidden to purchase from private plots food and feed grain for their own use as of 1 January 1982.

Article 3. (1) It is recommended that the agroindustrial complexes review the question of increasing the number of animals raised by people employed in agroindustrial complexes at their general meetings, and make it possible for those who have worked out the mandatory minimum of man/days to raise an unlimited number of animals for their own needs and for sale to the purchasing organizations.

(2) The okrug people's councils and agroindustrial complexes shall grant to workers, employees and pensioners who are willing to raise animals with their own fodder neglected and abandoned land free of charge and to assist them in the cultivation of such land under the stipulations applicable to private plots of individuals employed by agroindustrial complexes.

Article 4. The okrug agroindustrial unions and complexes may contract with the okrug cooperative unions and the consumer cooperatives for the purchasing of farm produce from the private plots. This produce will be included in the plans of agroindustrial complexes for mandatory sales to the state.

Article 5. (1) The okrug agroindustrial unions and complexes must ensure the production of a sufficient amount of pigs to meet population needs during the period of heaviest demand (February-June).

(2) Before the end of the first quarter of 1982, no less than 100,000 fertilized saws must be made available to the population from the public farms in accordance with the appendix. The farmers will pay the agroindustrial complexes after the mother saws have been delivered to the purchasing organizations. The Bulgarian National Bank shall grant loans to the agroindustrial complexes to cover the cost of such pigs sold to the private plots.

(3) The bonus of 1.50 leva per kg live weight, as per Article 1 Decree No 41 of the Council of Ministers for 1980 (DV, No 62, 1980) for young pigs raised by private farmers on a contractual basis shall be retained and paid out of budget funds.

Article 6. (1) In coordination with the okrug agroindustrial unions and complexes, the Rodopa State Economic Trust, the Central Cooperative Union and the okrug cooperative unions and consumer cooperatives will set up depots for the purchasing and raising of lambs, weaned lambs, kids and other animals with a view to meeting the deadlines and conditions of the contracts on purchasing livestock from private plots.

(2) The agroindustrial complexes will meet their assignments on mandatory sales to the state with the meat in live weight obtained from the depots.

Article 7. the Bulgarian Agrarian National Union, the National Council of the Fatherland Front, the Central Council of Bulgarian Trade Unions and the Central Committee of the Dimitrov Communist Youth League are asked to undertake extensive explanatory work among the population on increasing the production of feed grain and livestock products in private and auxiliary plots.

Article 8. The Ministry of Finance shall allocate to the National Agroindustrial Union an additional amount of 7.1 million leva for 1981 for the raising of 500,000 weaned lambs by the public farms.

Article 9. (1) Violators of the stipulations of Article 2 shall be punished as per Article 32 of the Law on Administrative Violations and Penalties, unless they are subject to more severe penalties.

(2) Grain purchased in violation of the present decree shall be confiscated by the state as per Article 21 of the Law on Administrative Violations and Penalties.

(3) Violations shall be established by officials named by the Central Council of the National Agroindustrial Union and penal decrees shall be issued by the chairman of the Central Council of the National Agroindustrial Union or his representative.

Article 10. The State Planning Committee and the Ministry of Finance shall make the necessary amendments to the plan of the National Agroindustrial Union based on the present decree.

Concluding Stipulations

1. Paragraph 2, Point 1 of Resolution No 37 of the Council of Ministers Bureau (DV, No 22, 1981) is hereby deleted.

2. The implementation of the present decree is assigned to the Central council of the National Agroindustrial Union and the executive committees of the okrug people's councils.

5003
CSO: 2200/46/47

GDR HARBOR PILOTS AID DEVELOPING NATIONS

Dresden SAECHSISCHE ZEITUNG in German 9 Oct 81 'wir' supplement p 1

[Article by Karl-Heinz Scholz: "GDR Pilots in Young National States: Our Course Is Solidarity!"]

[Text] "Warnemuende pilot, please approach!" "Here Warnemuende pilot, what would you like, please?" Countless times day and night this is the way the interchange begins between the captain of a ship and the pilot station of Rostock-Warnemuende which coordinates the assignment of the pilots and the tugs. Circa 9,000 times each year the pilots, experienced seamen with a captain's license, climb aboard a ship to pilot it safely into or out of a harbor. Each of these men knows the great tasks the 10th SED Congress has posed for navigation.

In spite of that they all consider it an accepted fact that their collective has for years not reached and is not likely to reach for the foreseeable future the full strength according to plans. Up to today 20 Warnemuende pilots have been helping Arab and African countries, in genuine internationalist solidarity, overcome the legacy of their colonialist suppression and frustrating imperialist designs.

We are standing with the head of the Warnemuende pilots collective, tugboat chief Konrad Michaelis, on the upper floor of a highrise, where the management of the VEB dredging, towing and recovery shpping company of Rostock is located. The collective has 60 pilots and small-craft tugboat captains. Each ship beginning at a certain size--be it from the GDR or under a foreign flag--that wants to enter or leave the port must have a pilot aboard to advise the captain. And not seldom it happens that a pilot goes into a so-called overseas pilot assignment on a foreign vessel the captain of which is not familiar with the Baltic or the North Sea. Konrad Michaelis' farthest overseas pilot operation took him on a 50,000-ton Brazilian vessel to the English port of Brixham in the English Channel.

This tugboat chief, as all pilots before him, has exposed himself to the storms and tempests of the oceans. Whenever he comes east to Rostock, he always takes a look at the first trading vessel of the GDR Merchant Marine, the "Vorwaerts," which is permanently at anchor there now as a pilot vessel. Here he started his ocean-going career, other pilots did so on the "Wilhelm Pieck" training sailboat of the GST. He and all his pilots had a hard time taking leave of a ship's

bridge, and he often would glance wistfully at a ship leaving port while tucking his briefcase under his arm and going home.

Reminiscences

From the upper floor that houses the pilots station with its sophisticated equipment, our glance goes far out into the sea and the land. Down at our feet, small vessels and large "tugs" pass through the sea channel which connects the overseas port a few kilometers inland with the open sea. We count 12 ships at anchor in Warnemuende, waiting in the port. Behind us, inland, the imposing silhouette of the port installations. Our tug-captain notices the amazement of us laymen enjoying this view from the top for the first time: "Sure enough, you are always again impressed especially when you consider that 30 years ago all there was here was marshland." He points to a spot in the harbor where light grey concrete towers are stretching toward the sky: "There a new transshipment facility is being built for grain, foddder and fish meal that started testing its operations prematurely on the day of the republic.

Then we are also expanding our petroleum port and next, our chemical harbor. We now have an annual transshipment volume of 15 million tons. In 1985, it will be 23 million! We pilots are in for a good deal of work!"

"And still you are sending your people to other countries," we asked him.

First the captain looks at us askance but then senses what hides behind our question: "Of course we miss each man and have to make up for him. That is, you may say, the solidarity of the ones who have stayed home!" Again he points to the harbor: "They wanted to force us down on our knees too, those imperialists, when they split Germany in 1948. We did not have one efficient sea-going harbor. That we had to build for ourselves here in Rostock. Today we are helping young national states in warding off imperialist extortion!"

He remembers 1956: "When Nasser's Egypt nationalized the Suez Canal at that time, the imperialists made war on that country. Our protest helped make them withdraw. And when Egypt asked us for help in pilots, we did not hide behind problems we had ourselves. We sent our people, that was an obvious obligation."

He draws a parallel with the present: "In the mid-1970's the Portuguese authorities withdrew their pilots and port specialists from Angola. So our pilots flew there, as they had previously flown to Algeria. Today again colleagues are working in Angola, Algeria and the People's Democratic Republic of Yemen, and others are getting ready for assignments in other countries. Nowhere shall the imperialists make out. We shall see to that!"

The Finest Experience

The tugboat captain introduces us to Willi Jargow, a pilot 47 years of age, who together with two other GDR pilots, lived through those crucial months in Angola. "When I came to Angola, the country was in the midst of war," he starts out. "In Luanda, everything was in short supply. The foreign pilots had fled, and the whole port operation was practically paralyzed. They had taken everything along--the port diagrams, the sea maps, documents for the towing techniques in the harbor, all things without which a pilot is stuck. A single 220-horsepower tugboat had made it fairly through all the tumult. We had to start with point zero--had to

dredge the depths at the moorings and the waterways ourselves and work out the towing techniques anew. That was not simple at all, and in the first few weeks we hardly got any sleep." "What were your thoughts then when you were facing the chaos the Portuguese had left behind," we asked him. "We were incensed about such unscrupulousness, of course, and our anger gave rise to our determination: now more than ever! We knew we were needed and could help deal the imperialists a blow. We thought of our work as a political task. After all, in the 6 months we were there we piloted, without damage, 360 ships of 28 different nations into and out of the harbor, and that, with a single tugboat, which means something!" Moreover, the GDR pilots trained young citizens in that country so they could later take over the management and operations in the harbor themselves. "That sounds simpler than it was because most of them had no practical experience whatsoever with navigation!"

We asked what had his finest experience been. Willi Jargow reflects a while and then says: "Actually, every success in our work was a fine experience. But there was one success I like to recall especially: after we had been working there for 3 months they asked us one day whether one of us would like to act as captain for a ship taking foodstuffs to the port of Cabinda. People there were starving and absolutely needed help. Though we had absolutely no nautical equipment and did not know the water there, I accepted. That was the natural thing for us to do. Coming back we touched a port at the mouth of the Congo and took aboard needy people there. When we returned to Luanda all who had legs to walk had assembled in the harbor. We got a reception as I had never experienced in my whole life, and which I am not likely to forget for the rest of my life." "And there is something else I should like to add," he continues: "Whenever a ship from our republic arrived in the harbor with solidarity goods, to us it would be not only a greeting card from our homeland but also always a marvellous experience. We especially, working and living among these people and knowing their poverty could surely appreciate the importance of such solidarity shipments!"

More than 6,300 ships from 45 countries, so we learn from the tugboat captain, were handled by the GDR pilots in the 4 years they were in that country, taking them into and out of the ports of Luanda, Lobito and Mocamedes. That broke the blockade that had been intended by the withdrawal of the Portuguese pilots!

As a Pilot in Anaba

Another witness to the solidary work of the Warnemuende pilots in young national states we met in the 43-year old pilot Rudolf Stahn, who worked in the Algerian port of Anaba for 4 years together with his colleague Walter Mehlhorn, who right now is back again in Angola. "Anaba is an important harbor," he tells us. "When I was there they were building a large steel plant nearby, and all the supplies for it came through this harbor. We helped there because Algeria did not have enough pilots. At the same time we trained Algerian pilots and, on the request from the Algerian Ministry of Transport, prepared a pilot training program they are still using today. After we had returned home we heard from captains on GDR ships who came from Algerian ports that our pupils have turned out to be fine pilots, which makes us very proud and content, of course."

Him we also ask to tell us a fine experience. Without giving it any thought, he says: "The people we got to know and to work with. We and our families never felt like strangers among them but always as friends among friends."

We did not meet all the pilots who had at any time worked abroad when we were in Warnemuende. They either were again abroad or spent well deserved furloughs with their families at that time. Tugboat captain Michaelis handed us, as "concerned witnesses," the diary of the pilots collective which also reports on the pilots' experiences on assignments abroad.

Among the entires we find the following one of 25 April 1980: "As GDR pilots we enjoyed much respect among the port authorities of Anaba and the captains on the ships we piloted. During my 22-month assignment I piloted 1,653 ships without any damage. I believe to be able to say with the best conscience that we GDR pilots have worthily represented our republic."

A few pages later, under the heading, "GDR Pilots Near the Equator": "The help we are giving to the People's Democratic Republic of Yemen is an expression of the solidary attitude of our state. The realization that made the Romans refer to 'Arabia felix' (happy Arabia) is fully borne out today. We three pilots, assisting the People's Democratic Republic of Yemen, contribute to that as do many other GDR specialists. As seamen we will stay on course toward solidarity!"

5885
CSO: 2300/124

MEASURES TO IMPROVE S&T PROGRESS IN COMBINES DISCUSSED

West German Commentary

Bonn IWE-TAGESDIENST in German No 183, 14 Dec 81 pp 3-4

[Report from Berlin: "SED Threatens Economic Functionaries With 'Material Consequences'" A translation of the East Berlin EINHEIT article cited below follows this commentary]

[Text] The theoretical SED journal EINHEIT (No 12, 1981) has threatened the GDR's economic functionaries with "material consequences" for their lack of dedication to scientific-technical progress. "More resolutely than up to now" one should have to take issue with deficiencies in the work of the functionaries. The journal in this context admitted considerable difficulties in committing the socialist managers to the SED's economic policy course. No combine director could of course any longer be found who would fail to explain right away how important a sound scientific-technical strategy is. Unfortunately, however, words and deeds or even good intention and resolute struggle still were not "one and the same thing" in rough reality. Many a functionary had trouble to let go the yardsticks of the past when raw materials and energy sources were much cheaper and international technical development had not yet required today's tempo. Often they also had trouble in implacably gaging the results of their own work against world standards without looking for extenuating circumstances. The journal in this connection asked for resolute struggle against what seems to be a widespread view on the executive levels of the economy "to ask much only of others while assigning modest goals to oneself or, while referring to the indeed frequently tough requirements for plan fulfillment, shun the necessary conceptual, future-oriented work."

Material Rewards, Penalties Recommended

East Berlin EINHEIT in German Vol 36 No 12, Dec 81 (signed to press 11 Nov 81) pp 1199-1205

['The Topic' feature article by Dr Hans Modrow, economist, member, SED Central Committee; first secretary, SED Dresden Bezirk Management: "Party Work in the Struggle for Scientific-Technical Progress"]

[Text] The implementation of the party's economic strategy calls for a science policy resolutely oriented to the requirements of long-term economic efficiency and quality development. Bezirk management, thus, in its leadership activity, aims at having each combine purposefully work out its scientific-technical strategy and translate it, step by step, into concrete tasks. It induces the party organizations to provide for a creative climate in the R&D collectives and uniformly conduct the political struggle for high achievement.

In the efforts by the communists and all working people in the GDR to implement the 10th SED Congress decisions, aimed at the well-being of the people, the strengthening of socialism and the safeguarding of peace, the full utilization of our country's tremendous science potential plays an outstanding role. Genuine top achievements in science and technology, greater creative results from R&D and their rapid and broad economic utilization, that--as Comrade Erich Honecker emphatically pointed out at the 10th party congress--is a key issue for the implementation of the party's economic strategy. This way alone can under the changed and more complicated conditions of the 1980's the needed high performance improvement of the GDR economy be achieved, which has to be accomplished virtually without any or only an extremely small increase in energy, raw material and manpower resources. This course moreover is in line with the basic experiences and orientations of the 26th CPSU Congress on speeding up scientific-technical progress and shifting the USSR economy onto an intensive course of development.

New ambitious requirements arise from these decisions for the leadership work and all the political-ideological efforts of the party on all levels. That is true, not last, of the party organizations in Dresden Bezirk where a significant portion of the GDR's industrial and science potential is concentrated. In some important fields, especially in the nuclear and construction material sciences, and with respect to the theoretical principles in selected fields of electronics and electrical engineering, and in machine building, achievements by scientists in Dresden Bezirk to a very large extent determine the tempo and level of GDR development and its contribution in collaboration with the Soviet Union and other CEMA countries.

The prime consideration in the leadership work of the party bezirk management is that this is a science policy that is resolutely oriented to a long-range economic efficiency and quality development. That above all then raises the question about the position and responsibility of the combines in which in recent years the production and R&D potential of the GDR's industry and construction industry has been greatly concentrated. The combines must make concrete demands on science and technology for productive solutions of high economic benefit, they being the ones that translate scientific-technical data into economic benefit. That applies to inventions and scientific-technical solutions from the combines themselves as well as to basic research results from institutes of the Academy of Sciences, from universities, colleges and other science institutions.

From the experience of management and cooperation with the party organizations in important combines in electrical engineering and electronics, machine building, metallurgy and the light industry, which have their management in Dresden Bezirk, especially four problems and tasks stand out for ensuring through political work a higher speed in scientific-technical progress.

First: Party bezirk and kreis managements must emphatically see to it that each combine works out with great determination and purpose its scientific-technical strategy.

Producing top achievements where they are most urgently needed economically and ensuring on that basis a penetrating and lasting efficiency improvement of the whole combine is, in principle, not achieved through short-term actions, no matter how fast they are. If today in Dresden Bezirk there are on the one side progressive combines like Robotron Dresden, the Riesa tube combine and others, which in many respects set examples in implementing the 10th party congress resolutions, but then others as well, which in some positions are lagging behind, the reason can greatly be found in the differences in the status and level in which the scientific-technical strategy is worked out.

The "secret" of the most successful combines--as clearly confirmed by performance comparisons and experience exchange--mainly is that they plan and organize the science and technology tasks on which they are working today from the standpoint of the future, the results economically required in years ahead. They are basing that not only on the attained and known criteria but also on the international criteria to be expected at the time that new products and technologies assume their production effectiveness. Such approach alone conforms with the 10th party congress resolutions and leads to the great performance boost which we absolutely need under the conditions of the 1980's to secure what we have achieved and gradually improve it further.

The comrades in the Robotron Combine, which mainly makes electronic computer products and office machines, after much preparation began in 1976 systematically working on determining the combine's performance and product development for the years 1981 to 1985. To that end, essential criteria for their own work were made more specific. E.g., they came out with the task completely to replace their production assortment, mainly by means of microelectronics, within 3 to 5 years and reduce with the new products, as compared with the ones they had before, the labor expenditure in production between 30 and 80 percent while significantly improving intrinsic values. In the outcome of this intensive work the combine considered a plan project at the beginning of the broad plan discussion for 1981 to 1985 which compared with the plan project of 1978 anticipated a production growth nearly tenfold higher for this period while the number of manpower was greatly diminished.

Right now the working people in the Robotron Combine, led by the party organization, are making great efforts toward exceeding the 1981 annual plan through an extra increase in labor productivity and without any additional material and energy by a 4-day output and increasing the net production still more rapidly than the commodity production.

No party secretary or combine director can of course any longer be found who would fail to explain right away how important a sound scientific-technical strategy is. Unfortunately, however, words and deeds or even good intentions and resolute struggle still are not one and the same thing in the rough reality of life. All the more urgent it is for the party organizations to rule out any cutback of decisions in this field, disclose causes for deficiencies and stubbornly reject any "justifications" for not preparing a strategic scientific-technical conception proper as to scope and quality.

In political-ideological terms the key issue here is--as some disagreements in some combines have clearly revealed--to make, first and foremost, great demands on oneself in a party-minded, combative position and the will and readiness for genuine scientific-technical and economic peak achievements. All managers and work collectives must well understand there is no other alternative, no other way to ensure the needed efficiency growth. Many a comrade still has trouble to let go the yardsticks of the past when raw materials and energy were much cheaper and international technical development did not yet require today's tempo. The development in recent years, the demands of the present and a realistic glance at the future make the new situation perfectly clear, however. In our own country the demands and requirements placed on the scientific-technical level and on the quality of products have grown fast. The indispensable efficient participation in the international division of labor makes qualitatively higher demands today as well, especially on the GDR, a relatively small country. That principally concerns our close fraternal cooperation with the CEMA countries, particularly the Soviet Union. Top achievements are what is wanted there. He who expects much of his partner must himself give a lot. In trading with capitalist countries it is known well enough how increasingly intense the competition struggle there is and how the tendencies of the confrontation policy against the socialist countries have had their effect on it. Earning the necessary foreign exchange under such conditions is, in principle, possible only by products that stand up to any international comparison.

When the party organizations--especially the comrades in combine management and in the scientific-technical centers--purposefully clarify these matters and rigorously oppose the notions of asking much only from others while assigning modest goals to oneself or, while referring to the indeed frequently tough requirements for plan fulfillment, shun the necessary conceptual, future-oriented work, they will meet a decisive task in implementation of the 10th SED Congress resolutions.

Preparing a scientific-technical strategy is of course a creative process that every combine must carry out on its own. But the basic requirements and principles in the approach apply to all combines. Bezirk management hence pays great attention to experience exchange and to the compelling generalization of best experiences. It assists in special conferences where basic problems in the combines' development strategy, the intensification of research, the introduction of such modern technologies as microelectronics and robot technology, the full utilization of the social labor capacity, and the sales and export strategy are discussed thoroughly.

A special concern is to give still more thought to getting everything there is from the cooperation with the Soviet Union and the other CEMA countries and make socialist cooperative R&D work among combines and science institutions in our country still more effective. Not even the best combine can do with a strategy of reaching the scientific-technical top level all by itself. Good results, e.g. in microelectronics and electronic computer technology, or also in metallurgical refining, in the final analysis have their basis in our close systematic collaboration with our partners in the Soviet Union.

In electrical machine building such collaboration has reached a new level owing to the joint reconstruction of medium-size and large-scale machine production at Sachsenwerk, Dresden. This project, in the implementation of which the joint socialist competition of all participants from Leningrad and Dresden is becoming increasingly better, will boost the output so much, through the application of most up-to-date technologies and without an additional labor force, that the need of the fraternal countries for the electrical engines in question will be satisfied.

Other excellent achievements are due to advances in cooperation, the development of socialist cooperative work, in our own country, from basic research to production and sales. The comprehensive contracts between the Technical University Dresden and four combines in the bezirk and the Microelectronics Research and Technology Center Dresden, for example, have done a lot of good. And this pertains not only to specific research tasks but to all-inclusive cooperative work on preparing and implementing important scientific-technical conceptions, from basic research via development to production.

Also the social science disciplines are involved, and so are the matters of training the personnel. Here, among other things, we use certain experiences from the close cooperation between colleges and enterprises in Leningrad, which we were in the position to study thanks to the close partnership relations between Dresden and Leningrad and the great assistance received from the comrades on the rayon committee in the heroic city on the Neva.

This manner of shoving close together basic research facilities, universities and colleges, combines and enterprises is a most complex process. It calls for many new insights and attitudes and has implicationsfor management and planning and certain other structures. Still only a few years ago, e.g., an argument could often be heard at the Technical University Dresden that one could not tie oneself up so closely with production, with enterprises, because that would come at the expense of the crucial tasks of the colleges, of instruction, and of basic research, not related to concrete application. To be fair it must be admitted that certain notions in the enterprises also blocked such cooperation. In particular there were notions considering the college potentials as a sort of fire department that could quickly be called to take care of a burning issue.

Under party leadership and while taking issue constantly, vividly and aggressively, with such opinions, through frank, creative debate on optimum solutions and on exhausting the great opportunities inherent in our socialist order, our planned economy, a profound change has taken place in this field in recent years which is constantly being further developed. Now it has long been no surprise any more

to find in combine enterprises whole student groups and colllege scientists, researchers and other working people from enterprises working, in implementation of the comprehensive contracts, in socialist taskforces, on state plan tasks of the science and technology plan, students taking care of part of their training in enterprises, college professors taking on directly for extended periods responsible tasks and functions in enterprises, or men of practice giving lectures in colleges or even transfering to colleges, so that this way a fruitful exchange of personnel has begun.

Tied in with this process, that combines a further improved instruction and basic research level in the colleges with deepening their practical contacts and direct economic efficiency, is our now having begun to set up technical projects, where the colleges under their on responsibility take over certain directly production-effective R&D tasks. At Technical University Dresden, e.g., a technical project will get under way in 1982 in which scientists and students, through a precise division of labor coordination with the Microelectronics Research and Technology Center Dresden, take on a certain technological phase in the production of microelectronic circuits, doing all that is needed for them to be introduced at once into production.

Second: A sound and correct strategy leads to success only if it is translated, step by step, into concrete tasks and partial goals.

The quality and speed in which long-term conceptions, especially for R&D under the annual plan, the science and technology plan, and the concrete competition objectives and commitments, are turned over and the criteria and schedules are argued out, today have become a decisive testing ground for the party organizations in the combines. Only by barring any curtailment and by assuming the struggle for highest goals can the necessary results be obtained.

Among those who do exemplary work here are the communists in the VEB Planeta Druckmaschinenwerk Radebeul, an enterprise in the Werner Lamberz Polygraph Combine Leipzig. They insist that in the scientific-technical requirements, mainly in preparing, defending and accounting for the commitment folders, which most concretely set down the requirements, conditions and deadlines for any given R&D task, international performance comparisons and an assessment of the likely further development is what one must start from without fail. And this not only in terms of the products' technical parameters, but also of the production economy, the market situation when the production is complete, and sales. That is the only way it is possible not just to talk a lot about top products but to make it with them successfully through the sharp confrontation with world market conditions and to get the benefits we need for our economy. The modern sheet offset printing machines from Radebeul, where microelectronics also is increasingly in evidence, can compete with any comparable products in the world. The party organization's rigorous focus on peak performance, and the complex approach that brings that objective to bear on every partial task, make for a tenable starting point for success.

This leads to the question of investments. Our rigorous focus on intensively expanded reproduction and the conditions for the further development of the GDR economy call for the harshest criteria especially in this field. Wherever we

invest, we have to struggle hard to break through to peak levels in technology and products. In the Planeta enterprise referred to above, specific investments are concentrated fr m that vantage point. They must with all resolve however be aimed at the rationalization of production. Thus, by use of 146 industrial robots and through their own construction of various other means of rationalization, production sectors are to be developed that require little service. The aim is to reduce the 5,000 working hours of now to 2,500 for an output of M 1 million.

The party organization mobilizes all working people for these tasks and exercises a thorough party supervision over the main steps in implementation in line with a precise program.

Third: Extremely important for high science and technology achievements are the purposive efforts by the party organizations in the combine's R&D departments.

The role of a creative and progressive climate in these collectives was commented on by Comrade Dr Siegfried Schiller, deputy director of the Manfred von Ardenne Research Institute Dresden during the discussion of these matters at bezirk management, as follows: "The point is to provide a militant atmosphere and make the proper use of the advantages of socialism. In decades of practical work I have always found that it always depends on the climate created in the collectives by the managers whether new technologies became applicable or thousand reasons were found why they would not work." Not running after others and clamoring for imports, but seeking one's own efficient solutions and working them out through socialist cooperative efforts--that should have to be the motto, Comrade Schiller asserted.

Hence it is a most responsible task of the party organizations in the R&D collectives to see to it that there is a truly creative atmosphere and to encourage a deliberately militant dedication by the associates and all the collectives. Much depends here on the managers and the education, selection and proper assignment of the personnel. More still than elsewhere they affect, through their strength of conviction and radiation, their dedication and model role, the level of work. In the combines of Elektromaschinenbau and Robotron Dresden, e.g., in tasks such as the application of electronics in electrical machines, the production of a new microcomputer, and the development of certain peripheral ADP devices, managers are heading the collectives who with a high sense of personal responsibility and with scientific curiosity and research drive, with creativity, passion and tenacity, endeavor to solve the tasks. They are totally dedicated to it and are sweeping the collective along. Properly understanding our party congress resolutions means to them not only knowing them well but solving with categorical success the tasks arising from them in their own departments.

There are many factors of course that affect such a creative climate. That is why the party organizations must do work that is principled, expert and sympathetic. Often it is not easy gaging the status and results of one's own work implacably against world standards without looking for extenuating circumstances. As one knows one's own efforts and what one had to do frequently to surmount difficulties and limitations, it may be tough to be matter-of-fact about things and evaluate them realistically. But without honesty, one's own tasks and responsibility become hazy, and the needed results are not achieved.

Sometimes an idea fizzles, sometimes there are unforeseen difficulties. Maybe a high competition objective booked as a commitment fails to be attained. When one pushes into new territory one must not expect that every step will work out. Must this cause reproach? Premiums and awards come only for accomplished achievements, of course, and we shall have to take issue more resolutely still than we have with deficient work and insufficient dedication, which would even include material consequences. But with it we must promote the courage for healthy risks even if sometimes, with all the high dedication, efforts fail to culminate in success. Such courage is among the conditions for creative work. It must be developed and fostered and be made to conform with strict management and unequivocal accountability.

An important task the party organizations in the combines as well as the science institutions have to face with special concern in this field is working with the colllege graduates, the young technicians, engineers and scientists. Experience has shown that precisely the time that they start working in the practical field is especially critical for forming those characteristics that distinguish a genuine socialist fighter on this decisive frontline. How effective energy, revolutionary elan and also the knowledge acquired through study become depends, not last, on how quickly young people in this field are led into responsibility of their own and ambitious independent tasks. The party organizations have to be tough in doing away with the residues of such manifestations as that one would--as they say--"initially let the young people have their way for a while," let them look around and get used to it, so that, under such and similar pretexts, the young people are kept away from urgent tasks. The communists must see to it everywhere that the young scientists and engineers get their baptism of fire fast in crucial sectors of the struggle for scientific-technical progress. Dresden Bezirk aims many youth projects at that--at tasks, for which youth has been assigned the full responsibility.

Dresden Bezirk has placed crucial tasks in this field into the hands of the youth, e.g. in the bezirk youth project microelectronics, from developing certain microprocessors, via their testing and production all the way to the use of microelectronics in consumer goods, machine building, automated techniques and the handling of important ancillary tasks for microelectronics. That this is the correct way is borne out not only by a number of excellent scientific and economic results but also by the development of quite a large staff of young people who are doing well in solving these tasks, develop their skills in scientific work and management and promote militant communist positions on behalf of our cause.

Fourth: Uniform political leadership for all sides and processes in the effort toward high achievements in science and technology by the party organizations is of great importance.

With the high degree of division of labor which distinguishes the combines it is important for all to gain the necessary overview so as to better understand their personal responsibility for the whole and cope with their own well delineated task all the more consciously. The critical yardstick for every invention and patent is and remains the economic effect accomplished by it, the contribution to the national income and the cost/benefit ratio, not in just one area but in the whole combine and the entire economy.

The assignment and efforts of special party activists groups have found much acceptance when there are new products or technologies that are of special importance to enforcing the scientific-technical strategy of a combine or even several combines--for example for the application of microelectronics in machine building or the development of new micromotors and their being put into operations in the combine for electrical machine building. They are staffed by communists from all areas involved. As a tool of party management, they consider and determine how from the vantage point of ensuring the overall task, political indoctrination can be developed and a purposeful responsible cooperation of all partners be ensured.

In combines that have enterprises which often, with their own basic party organizations, are located in various bezirks, the work of the council of party secretaries proves an important method to promote via the party organization the coordinated R&D efforts all the way to sales and foreign trade.

On the political management of these fundamental processes in enforcing the economic strategy of the 10th party congress in Dresden Bezirk, the secretariat of the SED Bezirk Management Dresden, after a thorough discussion of all matters in a plenary session of bezirk management, has come up with its decision. It contains the main concrete tasks for the combines, enterprises and science institutions and thereby offers all party organizations a direct guideline for action.

Altogether, all efforts to accelerate the scientific-technical progress are aimed at still more decisively and effectively exhausting the great and superior possibilities offered to us by the socialist order in the GDR and within the scope of the fraternal community of the socialist countries. The great scientific-technical potential, the working people's high level of education, and the centers of economic capacity set up in the combines offer us the opportunity, as called for in the resolutions of the 10th SED Congress, to accelerate matters in this field further and comprehensively combine the scientific-technical revolution for the good of the people with the advantages of socialism.

Incentives to Promote Creativity

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['The Topic' feature article by Prof Dr Fritz Haberland, economist, department head, Central Institute for Socialist Economic Management, SED Central Committee: "Effective Combination of Science and Production in the Combine"]

[Text] Because the opportunities of our scientific-technical revolution have become the main reserve for performance and efficiency growth, the article probes the focal points arising from it for management aiming at more efficient scientific-technical work. Aspects of a target-directed motivation for the research drive and of its rigorous economic orientation and of the formation of a scientific-technical potential in the combines provide interesting suggestions.

Because the opportunities of our scientific-technical revolution have directly become the main reserve for the performance and efficiency growth of our economy, we must make increasing efforts and consistently pursue the appropriate ways for using those opportunities. Great weight attaches here to the task to combine science with production more closely still than we have done so far and to mold our production profile accordingly.[1] The economically crucial connection between science and production is brought about in the combines. Through them the basis has been set to adapt the GDR economy in good time to the reproduction and growth conditions of the 1980's. Our own as well as the inestimable experiences of the Soviet Union and other CEMA member countries have shown that the acceleration of scientific-technical progress and the economic utilization of its results, a resolute, economically highly beneficial intensification and socialist production rationalization, and a high flexibility in production and in our ability to react to market requirements compellingly demand large and efficient economic units. It is among the essential advantages of a combine that it can most effectively combine science and production under unified management within the framework of a large economic unit with high economic responsibility. Altogether it has much better opportunities than a single enterprise to bring the qualitative growth factors to bear, render the science-technology-production-sales cycle economically more effective, get a lot out of the advantages of close mergers with the USSR's significant scientific-technical potential and, hence, to enlarge the growth of our national income.

Most combines have learned more and more to get maximum economic results out of the use of science and technology: between 1976 and 1980, therefore, the production quality and efficiency in our economy, based on scientific-technical data, grew much faster than the input in scientific-technical potential. The level of scientific-technical work was raised with purpose. The proportion of top achievements in the tasks of the science and technology state plan grew significantly. Advances in enhanced production refinement and the dynamic production growth of commodities with a higher intrinsic value greatly contributed to increasing exports, strengthening the material-technical base of our economy and improving public supplies. The economic targets for saving working hours, energy and material were surpassed in industrial and construction combines through measures of scientific-technical progress. In harmony with it, the working people's working conditions were improved and the socialist character of labor was given a deeper development.

High economic results due to the combination between science and production have become visible especially in combines which have already been in existence for a long time, such as Carl Zeiss Jena, the Herbert Warnke Conversion Technology Combine in Erfurt, and the Werner Lamberz Polygraph Combine in Leipzig. They have all along focused their management efforts on high speed in scientific-technical progress. Carl Zeiss Jena, e.g., due to high achievements in science and technology, has achieved since 1976 average annual growth rates in labor productivity, of its industrial and sold industrial output between 11 and 12 percent, in export more than 20 percent, and in the renewal rate in the production program of 72 percent. The proportion of output bearing the "Q" quality seal was more than doubled.

Seeking Higher Economic Efficiency

On the basis of the altogether positive results, however, greater efforts are still both necessary and possible "for accelerating and most effectively using our scientific-technical progress. We expect new advances of our best combines," Comrade Erich Honecker explained at the 10th party congress, "and at the same time it is important to bring all of them closer to the level of the most successful ones."[2]

For implementing the economic strategy of the 1980's, there are evidently the following objectively conditioned requirements for science and technology in the combines and their enterprises that stand out:

--On a broader basis--including basic research--more top achievements must be obtained in investment and consumer goods, procedures and technologies, boosting their economic utilization immediately. Original scientific-technical solutions worthy to be patented, which would at the time that they reach the market or production stage represent advanced international standards, are marked by a highly enhanced degree of refinement and are suitable for being produced at favorable volumes act as pioneers for efficient long-range production. And this is precisely what it is all about. Because if we "talk in the future of top achievements in science and technology, we also then mean peak achievements in our economy."[3]

--It is necessary to organize the replacement process for our production assortments, procedures and technologies in line with international standards and developmental trends and, as a rule, speed it up. That is of crucial importance for our economic growth, especially for boosting our exports and maintaining and extending market positions under the toughest competitive conditions, and for further improving the lucrativeness of our export. Replacement means here not only an upward development in science and technology but an all-pervasive principle of constantly renewing products and services embracing the production, sales, organization, training and advanced training, working conditions and so forth.

-- Directly connected with that it is necessary to accelerate the speed in which we spread our new scientific-technical results. Experience has shown that at least 50 percent of our possible success depends on our having our scientific-technical solutions production-ready at the right time and offering them then on the market. The less time it takes to go through R&D and the production and marketing stage, the faster efforts expended accrue to us, the higher is the yield and the greater our contribution to increasing our national income.

--It is of an importance of principle for a higher economic effect of science and technology to focus the results of scientific-technical progress and investments resolutely on deepening the intensification process and connect them most closely with socialist rationalization and reconstruction. Especially with that aim in mind, in which our seeking higher efficiency combines closely with our improving our working conditions, investments should be placed and made effective as engines for scientific-technical progress.

In all the measures relative to the reproduction of our basic assets, an importance of the first rank attaches to constantly modernizing machines, installations and equipment by replacement and general repairs, while we also, as much as possible, observe maintenance for our inventory on a continuing basis. As has been demonstrated internationally, effectiveness can not only be recovered much more cheaply with some efforts, compared with new acquisitions, but can even be boosted significantly, provided one uses in these processes, e.g. the latest models in microelectronics, and in robot, control and ADP technology.

--To obtain the planned production boost almost completely from savings in energy, fuels, raw material and working material, science and technology in the combines have the fundamental task to find new solutions for energy, material and cost-saving designs, technologies and procedures and use them at once at a large scope. A key issue here is enhanced refinement of raw and working materials. We must also develop new procedures and technologies for making a more efficient use of secondary raw materials and waste products available in the GDR.

To meet all these demands placed on science and technology in the combines, we must always consider that scientific-technical work is not an end in itself but serves the objective social and economic needs of society. They "have to be satisfied by a high-grade technological and quality production through the most economical ways and means."[4] For the practical efforts of each combine and enterprise this means to do everything in research and technology to obtain a higher economic effect from scientific-technical progress and to keep in mind for all new scientific-technical solutions and measures that they have to be kept in line with the criteria for the well-being of the working people that are adequate to our socialist society, for easing their labor and further developing their abilities, talents and knowledge. To solve these crucial tasks it is extremely important thoroughly to study and utilize in our management activity the most pertinent experiences and new data.

As disclosed by performance comparisons and experience exchange among combines and by surveys in a large number of combines, the main trends are clearly marked for effectively combining science with production.

Responsible Conduct

In combines that have done well over many years, science and technology are in every respect fully integrated in the combine's reproduction process and management. Critical for it are a clear basic position taken by the general and enterprise directors and their management collectives on the key role of scientific-technical progress for performance and efficiency development, the mobilizing effect by the party secretaries and managements of the basic organizations and, no less, the understanding and commitment of those who are themselves engaged in R&D. A clear basic position means, of course, not treating science and technology as a "departmental matter." It rather requires that each manager--from the general director all the way down to the technical directors and department chiefs in the combines, enterprises, and R&D facilities--exercises his responsibility. This is the only condition that makes possible for the "aggregate" of management to fully live up to its duties to accelerate scientific-technical progress and utilize its data.

Combines that are successful in their everyday work live up to the 10th party congress demand to accept as criterion for evaluating research data none but the most advanced standards in any field. Together with the technical directors, therefore, the general directors see to it that technical-economic analyses of the current productivity, cost and quality standards and of the scientific-technical standards of main products are prepared and compared, without any compromise, with international top values. The economic leads for tasks in the science and technology plan are derived from economic requirements, substantiated by the commitment folder requirements and--without any curtailment--written into the plans of the combine. Altogether one can find in these combines that the planning of science and technology has become an authoritative point of departure for planning the performance and efficiency development. To that end, a close cooperation is organized with the chief cooperation partners in science and production.

The challenges resulting to a large extent from the altered growth conditions of the 1980's, as far as our economy is concerned, also are challenges of a definite kind to science, to the researchers, developers, innovators and rationalizers in the combines and enterprises. Their attitude toward these matters and their sense of political responsibility are seen mainly in the criteria they apply to their own work and in the economic results achieved. The approach of those combines should serve as a model where this "iron" law is observed: scientific-technical progress has to result in higher economic effects, in a greater contribution to the national income or else research and technology have failed in their social mission. The R&D facilities in these combines are oriented and committed to high economic results by means of economic contracts. Those who work here are fully aware that the greatest contribution to economic growth is expected of R&D, that high targets and requirements, in other words, are economically necessary. But they also find in this expectation the great appreciation our society has for them and their work, the great confidence in their ability and determination that commit them to our socialist society.

To find confirmation for one's work and receive a material and moral recognition for what one has accomplished for society means more to a researcher, designer or technician than just being "in love" with the new technology and the latest scientific methods. However great their enthusiasm may be for that--without which no good results are ever likely to be accomplished--, what successful operations on behalf of our society demand of them also are economic thinking, and a good knowledge of users' needs, of the markets, and of the compelling and ever tougher economic yardsticks. To find scientific-technical solutions that conform to such requirements one must have a fine technical knowledge, a profound understanding of political and economic contexts, and a clear political standpoint. That at once marks handles and tasks in the party organizations' political-ideological work. Party work should be very much concerned with providing the realization that any consideration shown for "weak" scientific-technical performance and insufficient economic results means, strictly speaking, lack of consideration for society. Only researchers and developers who work creatively with dedication and skill, have the courage for the new and for risks, are convinced of the need for cooperation with other scientific-technical disciplines and with production, and are capable of following that up, can guarantee top achievements. So as to keep shaping this basic position, this political responsibility, the managers and

party organizations in the most progressive combines see to it that the R&D facilities always again, in managerial awareness and self-critically, measure the results of their work against international top standards.

Ambitious Targets and Tasks

In conformity with the growing social requirements for the 1980's, which can be brought to realization only by a higher rate of economic growth, the elaboration of ambitious targets and tasks has become a key managerial issue in our scientific-technical work. The basis for it are central state leads, the saving of working hours, material and energy, and the quality improvements in products. Now it has been found that for long-term requirements, stable in their basic trend and flexible in detail, a high quality of basic knowledge is indispensable for scientific-technical work. This makes possible complex planning for effective innovator processes and for the reproduction process as such, on the requisite level. Determining the tasks no doubt is an extremely demanding scientific effort. After all, thoroughness and care in deciding which topic and which task are to be included in the science and technology plan go a long way toward ensuring the prospects of top achievements, avoiding mediocrity and minimizing risks. The care required implies close cooperation on every level that handles targets and requirements with the suppliers and users domestic and in CEMA member countries and with central and local state organs. Especially the exploration and consideration of future users' and market needs can hardly be overrated in their importance to the handling of R&D targets and requirements in our combines today.

Combines like Carl Zeiss Jena have worked out their required long-term leads through scientific-technical prognoses, research programs, product and cross-cut conceptions and developmental or intensification conceptions. Such documents increasingly take into account such new requirements and opportunities as the use of microelectronics and robot technology, higher production refinement and the production of high-grade consumer commodities. In a high-grade quality of such planning and decision documentation and the proper correlation between the targets and implementation conditions as to substance, time and methods, the managements find a crucial prerequisite for the ability of the combines to concentrate their funds and labor on the most efficient solutions and thus to arrive at internationally relevant peak achievements.

Targets planned can, in the interest of maximum efficiency, be realized only through cooperative work. Technical commissions for product groups or similar organizations have been found of benefit to this in some combines. Under the direction by the research chief of a given product group, the experts in the combine, the enterprise directors charged with producing the commodities, and representatives of the chief cooperation partner, domestic and foreign trade, and state organs and science institutions outside the combine work out and confer on the conception for the development and replacement of products and their most effective manufacture. In this they rely on data from scientific-technical prognoses and world standard comparisons, market and patent research, and the work of the market research groups. The knowledge gained from it and the objectives to be derived therefrom are periodically checked and supplemented. After the conception has been successfully defended before the general or enterprise director, the commissions see to it that it is taken care of expeditiously.

The most important knowledge to have come from the long-term planning and decision documentation is then used to prepare the commitment folders. They constitute a social mission for the subject collective. When they are so set down the decision is finally reached whether a top achievement in products, procedures and technologies that has a bearing on the most advanced international standards has in fact been achieved, been put on the market at the economically most favorable moment, and the long-term efficiency and quality requirements of the economy have thus been met. That makes it so important for the general directors and the combine and enterprise managements to attach the greatest value to the preparation of ambitious commitment folders. For that, of course, they have to have expertise and good judgment. For that purpose, a "science advisory council" for the general director has been found of use--as in the Werner Lamberz Polygraph Combine in Leipzig and the Microelectronics Combine in Erfurt. Representatives of the various science disciplines and practical experts through a debate point out possible consequences the scientific-technical developmental tendencies may have for the production in the combine and for satisfying users' needs.

Motivating Creativity and Initiative

What we need are passion and personal dedication for our thrust toward international top standards as needed by our economy: high-grade and highly refined products that get us good foreign exchange. That is the reason why more and more combine and enterprise managers, in close cooperation with the party, trade union and FDJ managements, pay the greatest attention to the motivation for high collective and personal creative achievements by those who work in R&D. They make it their personal business--as, e.g., in the Fritz Heckert machine tool combine in Karl-Marx-Stadt--to see to it that the basic conditions for inventive work and initiative are ensured and further developed. This manner of fully challenging their knowledge and skill and capability conforms with the interests and expectations of most of our researchers and developers and helps shape socialist modes of conduct. Young scientists deserve special attention here. They ought to be drawn into the solution of complicated tasks and be charged with responsibility much earlier in the game than is the case.

Effective material incentives and proper moral recognition are very important motivations. In advanced combines, the task-related merit bonus over and above the salary has become the main form of material incentives in R&D. Furthermore, the means of incentive available through plans are used as target bonuses to give special recognition for any outstanding creative achievement by top workers. Decisive for material incentives is that they are handled resolutely in accordance with the performance principle. Another important motivating factor, along with material recognition, is the experience of success, the joy and pride in that new, original ideas take shape materially in production when they conform, or in important field even are superior, to the technical-economic level of the competition on the world market and can become highly lucrative export items. These are all important impulses. Especially when there is added to the recognition within the enterprise a national and international recognition for personal creative achievement, it does a lot for motivation and points to the many forms of moral inducement and performance acknowledgement of which an effective use must be made.

Indispensable for developing creativity and initiative is systematic advanced training for the associates and managers in R&D. And so is their high-level political-ideological and technical training. How else could they be qualified, e.g., to apply microelectronics and robot technology fast and widely? But of course, an effective combination between science and production in the combines requires much that transcends even this: a new approach to vocational training, to the working people's training and advanced training, to a proper job and process related training well ahead of time and other things like that. If that is ignored, time is lost in the introduction of new and more efficient techniques and technologies that could certainly have been avoided.

Finally it is the work climate itself that releases motivating impulses. Maily creative debate and a progressive attitude toward new and novel ideas do a lot for creative activity. The work climate therefore must be marked always more by such factors as high criteria for one's own performance, willingness to take risks, pleasure in responsibility, comradely relations, readiness to cooperate in scientific work and open-mindedness for constructive criticism. The forming of such traits is effectively helped by socialist competition in the scientific-technical fields.

Important for such a work climate are the assigning of responsibilities and, above all, a confidence in the dedication and capability of the R&D personnel. They must sense at all times that the general director, the enterprise director and the party secretary will listen to them and help them in coping with complicated situations.

The Forming of the Scientific-Technical Potential

To combine science with production more closely in the combine, we must effectively structure and form the scientific-technical potential in qualitative and quantitative respects. The economic outcome largely depends on proper proportions as between basic research, applied research, development, technology, project planning, tool, model and experimental design, on there being pilot plants, testing or reliability laboratories, all the way to effficient capacities for a branch-specific construction of means of rationalization and their own construction department. That increasingly suggests the further development of cooperation among scientific-technical institutions in the GDR, the USSR and other socialist countries. The scope and suitable structure of the scientific-technical potential are clearly determined by the tasks that have to be solved. Consequently, there are improvements being made in the combines at present mainly showing the following trends:

--Basic research, the source and impulse for highly efficient innovations, is being strengthened. Depending on the specific requirements for product and procedural development, and for the reproduction conditions as such, the combines are building their own capacities for a targeted and application-oriented basic research. In the Carl Zeiss Jena Combine they have come to realize that they have to invest circa 10 percent of their research capacity in their own basic research.

--Technological research and technological work as such is being raised to the requisite level--as is done particularly in the Herbert Warnke Conversion Technology Combine in Erfurt. Implementing the requirements for science and technology in the combines, the rapid and broad application of microelectronics and robot techniques, and the enhanced refinement of output compellingly demand new technologies and, connected with it, a more efficient production organization. Proceeding from a technological concept, the further development and expansion of technological centers is being pushed in a number of combines. Their job is to prepare the technological lead through a division of labor and in a coordinated fashion, help ensure the material-technical conditions for a rapid and extensive application of highly productive technologies and procedures, and assist the combine enterprises in introducing them.

--Capacities in machine tool and model construction, in testing and in the construction of means of rationalization on their own are being quantitatively and, above all, qualitatively further developed. To emphasize but two aspects: For the marketability of our products, keeping the development time frame as brief as possible, thorough testing is highly important. That is why the combines--the chemical plant construction combine of Leipzig-Grimma among them--are starting to set up reliability laboratories. They make possible spotting quality problems in good time and putting mature solutions into production. Qualitatively new demands arise for their own construction of means of rationalization. This must produce important parameters for a rapid application of microelectronics and robot techniques, for modernizing the basic assets available and for ensuring spare part distribution.

Fully boosting the capacity of the combines and their enterprises above and beyond the customary measure--especially by effectively combining science with production--will bring it about for us to be able to make more and better end products available for public supplies, the economy and export that brings us much foreign exchange.

FOOTNOTES

1. Comrade Erich Honecker, "Bericht des Zentralkomitees der Sozialistischen Einheitspartei Deutschlands an den X. Parteitag der SED" (SED Central Committee Report to the 10th SED Congress), Dietz publishing house, Berlin, 1981, p 50.

2. Ibid., p 79.

3. Guenter Mittag, "Kombinate im Kampf um die Durchfuehrung der oekonomischen Strategie des X. Parteitages" (Combines in the Struggle for the Implementation of the Economic Strategy of the 10th Party Congress), Dietz publishing house, Berlin, 1981, p 36.

4. Ibid., p 37.

Problem of Worker Displacement

East Berlin EINHEIT in German Vol 36 No 12, Dec 81 (signed to press 11 Nov 81) pp 1214-1217

['The Topic' feature article by Dr Egon Heusing, engineer, operations director, VEB Robotron Accounting Machines Plant, Karl-Marx-Stadt: "Demands Posed by Microelectronics"]

[Text] How do advanced combine enterprises solve the demanding tasks resulting from the introduction of microelectronics in the production process? How is the creative potential of the entire enterprise collective put into effect? How can the advantages of socialism in the process of the scientific-technical revolution be translated into increasing efficiency in everyday work? These questions are answered with reference to the VEB Robotron Accounting Machines Plant, Karl-Marx-Stadt.

VEB Robotron Accounting Machines Plant, Karl-Marx-Stadt

--The republic's largest producer of accounting machines and automated machines and ADP devices with 8,800 working people.

--The plant is among the first major users of microelectronics in the GDR. The proportion of electronic products rose from 2.7 percent in 1974 to 58 percent in 1981.

--By 1980 as many as 84 industrial robots were in use. By 1985, as many as 386 industrial robots are scheduled to be in use.

--The production value of means of rationalization was boosted from M 178,000 in 1971 to M 4 million in 1980.

--Since 1976, 900 jobs are annually reorganized or newly organized.

--The plant was awarded the banner of merit by the SED Central Committee in preparation for the 10th party congress. In 1981 it was awarded the distinction of "enterprise of exemplary order and safety."

From the accelerated development, production and application of microelectronics, profound influences emanate on the further shaping of the reproduction process in the combines and the entire economy, indeed on all public domains and the everyday life of the people. It will change the nature of many jobs. It will largely release men from monotonous routine, put data and control processes under machine control and processing, make public information and communication processes more

efficient, improve labor organization and, not last, become an indispensable aid for skilled management and planning of the modern production process.

Microelectronics is at present the highest form of refinement for materials and raw material. It acts as impulse for scientific-technical progress and facilitates raitonalization effects at unprecedented economic magnitudes. But achievement comes before success. To release all the effects of microelectronics we must everywhere meet the demands made on development, production and application.

The VEB Robotron Accounting Machines Plant, Karl-Marx-Stadt--an enterprise which previously produced primarily mechanical office machinery—had to find, when microelectronics came in, new ways in R&D, production organization, technology and training, in all areas of the reproduction process, in other words. This conversion process, which started in our enterprise with the development of the 1840 minidataprocessing installation, was given long-term and systematic preparation and organization. It confronts us with the question of what effect microelectronics has on changing the substance of labor, so that we can draw the correct inferences from it for its future structuring and organization and, at once, take into account and direct onto the proper tracks all social consequences of those changes.

It is evident that the technical changes of the new products fundamentally alter the labor processes out of which these products come as well as those to which they will ultimately be applied. In our enterprise, focusing on the use of microelectronics in our products, the scope and substance of labor tasks therefore have been and are being increasingly modified. That becomes visible by the sequence of specific operations and is tied up with the use of novel means of rationalization all the way to producing complex automation solutions for complete sets of components or flexible processing systems.

Labor training and permanent advanced training are under such condition of special importance. We must carefully examine which modifications are necessary and take the requisite measures for them in good time. How important it is to consider far-reaching decisions carefully became especially clear in our enterprise when the question was raised whether or not ADP and accounting machine mechanics had enough training to cope with the new labor processes. Dropping our original ideas, we eventually came to the realization--which has now been corroborated by practical experience--that the application of microelectronics does not change what ADP and accounting machine mechanics have to do so much that they should have to be replaced by, say, electronics specialists. What is necessary instead is to provide for a correlation of the tasks the technicians and electronics specialists have in the production process so that a seamless transition is made possible, say, between assembly and testing. For that purpose one has also revised all the training documentation and the occupational profiles of the ADP and accounting machine technicians. When we compared the ways in which devices in our traditional production (e.g. an electromechanical automated accounting machine) and a device in our new production (such as an ADP device) typical of the output in our enterprise are put together, we found that the type and number of tasks involved were more or less the same but the intellectual-creative component in the work increased the more complicated the work became. That calls for a higher level of training, of course, because none but specialization qualifications can cope with the production of new products.

An example using two comparable tasks with the devices in our old and new inventory referred to may illustrate that:

--The assembly and adjustment of the BC Kl. 170 device we used formerly, with its highly repetitive cycles, demanded a great number of specialized manipulations (precision engine). The tools were mainly simple manual mechanical tools and scale embodiments (end measure and other gauges), used for installing mechanical components, functional adjustments or the correction of errors when tolerances were disregarded.

--The comparable testing and operation of the ADP device 1370 in our new inventory are, by contrast, marked by a low degree of repetition in the cycles but call for much more attention in measurements and controls. The tools that have to be used are much more complicated: the BUS analyzer, digital voltmeters and universal counters, needed for controlling the measuring points, analyzing the specification tables, and for data for repair.

Not only on the basis of the example given but also due to the analysis of our whole conversion process thus far in our enterprise it may be said: the application of microelectronics calls for a much higher degree of creativity and innovator spirit than did our old inventory, for higher qualifications and for an absolute determination to get more training in fundamental technical matters and acquire new knowledge and skills.

That up to now nearly all 1,700 college and technical school personnel and circa 4,800 out of 9,500 specialists have come to face the new demands of microelectronics was possible only because state management, the trade union and the enterprise party organization, relying on a thorough analysis and clear conception, have always made great efforts to have this task understood. Those efforts also take account of the fact that an individual may run into difficulties and burdens during the conversion period and take for granted that the process that goes on is not without problems.

So it has not yet been possible, for example, to find for all working people who faced these above-average training requirements and learned a second trade at once the kind of jobs that would be in line with such higher skills. Some of them temporarily are still assigned to simple and even at times monotonous jobs such as the mounting of conducter systems. From that one must derive all the more of an obligation for the managers, under party organization leadership, to consider further progressive changes and use, even while doing so, the higher skill level that has been created. What counts in any concrete case is to make these projects more effective through rationalization, to automate them or enrich the substance of labor through changing the technology and the labor organization. Here on finds that the use of industrial robots definitely makes for higher manpower skills and their application to obtaining optimum economic benefits. For that reason we look at the application projects in this technology that are scheduled up to 1985 as a demanding task resulting from the concrete conditions of the reproduction process, its rational organization and the effective us of our high training and education level.

For any socialist manager it must become a matter of standard procedure to cope with the penetrating changes in the enterprise production profile and with the specific ideological, economic, organizational and social tasks as they intertwine when the new devices are brought into production, and that, in particular, also includes those tasks that arise from the requisite displacement of manpower in the process of socialist rationalization. One can with certainty expect problems where this process fails to be prepared and implemented together with the working people and ignores their personal problems and interests. In turn, one can rely on the participation and understanding of the working people wherever they are convinced of the need for the changes and made aware of their political and economic importance, where they are prudently shown the future developments, by means of sensitive conversations, where they are instructed about how such developments will proceed and the social problems of the individual are included in these considerations. In our enterprise we have found it most useful to find out how much the working people are interested in their new jobs even before they get trained for them and to use great care while preparing new solutions for harmonizing as best possible the interests of the individual with those of the enterprise and of society. For that, we think it is imperative

--to make the best possible use of the working people's knowleige, skills and experiences;

--to inform the working people concerned about their new field of labor and their new jobs, the working methods, the composition of the collective and their further occupational developmental opportunities; and

--to conclude training contracts with the working people for their new labor tasks and to set down their wage rates while they are in training or are working themselves in.

Our experiences have confirmed that the modifications tied up with our production conversion were smoothest and most successful where we managed to establish conformity between the demand level of labor and the qualification level, between existing skills and the wage or salary group, and between the learned trade and the job one actually performs. We have also found that we must pay special attention to making our performance-oriented wage policy prevail. So we must always abide by the principle that assuming a more demanding job that calls for higher training has to crystallize in a commensurate pay-rate classification. In the outcome of the changes in our labor qualifications in our enterprise in the last 3 years, the demands made on the working people have increased so much that no one any longer works in wage group 3, the proportion of working people in wage group 4 has dropped by 10 percent, and the number of working people in higher wage groups increased accordingly.

The penetrating conversion process in our enterprise was carried out on the basis of a careful analysis of all jobs for which changes were in the wind. Included in our surveys were the working people's current qualifications, their activity, and their age and wage structure. But also matters concerning family situations, such as the number of children to be taken care of at home, must always receive careful attention in our enterprise where women make up 45 percent of the work force.

Only when the managers knew all that could they get a realistic idea of the training demands that could be placed on the individuals. If that is established, one can count on the participation by all of them and on their applying their experience to the success of the overall project. That is demonstrated by the example of the competition objective of the Werner Seelenbinder brigade: each of the 25 members of the brigade submitted his own contribution to the analysis of the technological process and the preparation of a scientific labor organization study, in the outcome of which the planned saving of working hours rose from 2,800 to 6,400. Thus, by raising the degree of automation from 50 to 60 percent and reducing manual work to as low as 15 percent, four workers could be released and made available for work in prototype constructions. The basic prerequisite was to train the brigade members in accordance with the existing training program in the enterprise as required by their new jobs and increase their versatility. The brigade members furthermore adopted the goal to reduce production consumption to 12 percent below their plan task and account for it in their budgetary obligations.

Experiences gained confirm as a necessary requirement this long-term steady training and information for the working people and their active involvement in the organization of the new processes. Advanced training has to be adapted purposefully and systematically to the speed in our development. This makes long-term personnel and training programs all the more important.

Our coping with this complicated process up to now shows how under the leadership of the enterprise party organization, in concert with enterprise management, an atmosphere can be created through the participation by all working people which can spread creative work toward a more definitive use of the advantages of socialism.

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ENGINEERS DISCUSS PROBLEMS IN INTRODUCING INDUSTRIAL ROBOTS

Improved Basic Research Essential

East Berlin SPECTRUM in German No 11, Nov 81 pp 2-5

[Article by Prof Volker Kempe, director, Central Institute for Cybernetics and Information Science: "Industrial Robots--Status and Long-Range Outlook of Research"]

[Text] According to recent data, by the end of this year 100,000 industrial robots will be in use in Japan. Of this number, more than 21,000 were purchased in 1980. Even two years ago, Even two years ago, the number of industrial robots in the world was stated as somewhat more than 30,000. The prognoses of that time have long been outdated by developments.

The rapid tempo of robot engineering is reflected in the objectives of our Republic. At the beginning of 1980, the use of about 6000 industrial robots was specified for the five-year plan. At the end of 1980, this goal rose to 10,000; the 10th Party Congress set the goal of replacing about 112,000 workers with around 45,000 industrial robots by 1985. Production and employment of these industrial robots are essentially borken down to the individual combines. Industrial robots serve to assure economic growth of 6 percent in our Republic. They are a component of the general strategy of refinement of policy under the changing conditions of the 1980s.

The Ministerial Council recently established a definition of the term industrial robot which is the same as the international standard. Accordingly, robots are not only freely programmable in several movement axes, with graspers or work organs on automated handling devices. We now count all devices used for independent handling of workpieces and tools for automation of main and secondary processes having the goal of releasing the labor force. Their axes of motion must be programmable. Accoridng to this definition, at the beginning of 1981 in the GDR there were more than 4500 industrial robots in use. This number clearly shows the necessity of correcting the initial objective.

Industrial robots should increase the level of automation in the entire economy. Robot engineering thus requires an analysis of all production and handling processes--especially in industry, but also in agriculture and forestry, construction, postal and communications services, in business, human services and health care. In order to meet the goal of the 10th Party Congress, problems similar to the use of microelectronics have to be overcome in the factories and combines. Development,

production and user groups in the districts are performing excellently in the organization of production and in preparations for the use of robots. They and other panels like the Central Working Group on Industrial Robots, have contributed to preparations on centralized decisions, performed an analysis and evaluation of the national and international status, worked out effectivity criteria, oriented research and promoted the coordination of development. Not least, they serve for a valuable exchange of experiences.

The central solution to the delivery problem, e.g. for drive mechanisms, special transmissions, sensors and controls is important for future work. Electrical engineering and electronics take precedence here. It is often forgotten that the cost fraction of electronic and electrical components make up 60 percent of the cost of an industrial robot.

An enormous problem for our economy and for universities and academies is the qualification of directors, workers, technicians, assembly-line workers. Preparations for the use of the new aggregates require extensive knowledge of the potentials and economic effects of robot technology. It requires the ability to analyze control algorithms, to master programming, to optimize the technological process under inclusion of the "intelligent" machines. In this qualification process, many industrial combines have made rapid progress in the last two years. I sometimes have the impression that in the academy, a similar, broad understanding among many directors is missing. To be sure, the progress in the development and use of robots has been proclaimed in radio and press. Nonetheless, it seems to me that the tremendous efforts behind this are largely unknown and not understood.

The Known Three S

In the USSR a central, state management for the production and use of industrial robots has proven useful by means of the State Planning Commission and the State Committee for Economics and Technology. At present, about 30 institutes in the Soviet Union are working on robot research. They developed about 200 modifications of industrial robots, almost entirely of the first generation. The most important types are being produced. Main uses are in machine building, timing industry, optics and ceramics. Japan--the country with the greatest number of robots--has a state promoted research program which combines the efforts of many universities and industries. The practical success of the Japanese has not been attained primarily through a concentration on research on second and third generation robots--Japan has a leading position in this area of research--rather, it is due to the most effective utilization of manipulators, robots with a high degree of standardization, through specialization and use of the simplest solution variants, that is, by using the known three S: standardization, specialization and simplification.

Highly Intelligent Generation

Internationally there are still no robots with complex, pronounced characteristics of the third generation. True, flexible manipulators are linked with high-performance computers in the laboratory and the essential behavior of third generation industrial robots is being simulated. Such robots are distinguished by rational reaction to unforseen or unprogrammable situations, by a learning ability and the needed situation recognition, and by simple teaching potentials to a high language

level. Some individual robots have reached a level which permits their economic use and they will make an appearance in the immediate future.

Second generation industrial robots are able to adapt a programmed work sequence to the real situation, within certain limits. They have available a highly-developed sensory system and simplified programming. This generation is already moving into various areas like welding, spray-painting, assembly. It is being emphasized in international research today. Research on the complex use of robots of first and second generation in automated production steps including their optimization, is equally important. The goal is a complex rationalization with multi-robot systems.

A Real Vision of the Future

From this it is visible that industrial robots of the third generation are still in the future. But just for that reason, are preliminary results on artificial intelligence, on information processing, on discrete mathematics and mechanics urgently needed. They create the prerequisites for the development of such robots. We are dealing here with genuine basic research. Robots of the third generation at a reasonable price are closely connected with the effective use and mastery of design, and with the production of highly-integrated microelectronic circuits (VLSI). This is also the reason why the broad use of third generation robots is not expected until after 1985. The technical literature presently gives this schedule for 1990.

The development line set by the 10th Party Congress on the use of industrial robots of the third generation is thus an exceptionally difficult task of a very complex nature. The time horizon will extend beyond the five-year plan and will require our best efforts. The main effect on use of robots in this five-year plan consists in the robotizing of production steps. The use of robots of the first and second generation--beginning around 1982/83--will remain in the foreground.

Waiting for the Super-Robot?

Our research must be able to meet this objective and the requirement of long-term lead for robots of the third generation. A one-sided orientation toward a super-robot would be wrong. It is important in this regard to warn against unrealistic preconceptions: Many persons are inclined to interpret the development line set by the 10th Party Congress--flexible automation solution using robots of third generation with fully integrated measuring and control mechanisms--schematically and one-sidedly. There are some administrators who are today promoting the third-generation robot. It would not be useful to begin its use prematurely.

In our republic, universities and the Academy of Sciences of the GDR are performing basic research and much applied research. The research work is being coordinated in a complex research task. In preparation for the 10th Party Congress, the design of the basic research in the area of robot engineering was revised and the Central Working Group on Industrial Robots was so advised. We attained a thorough orientation with emphasis of R & D on robots with a strict coordination with our most important industrial partners.

The Technical University at Karl-Marx-Stadt, the Technical University of Dresden and the Academy of Sciences developed into Centers for Robot Research in the GDR. Some engineering universities like the one in Zwickau and Mittweida provided important contributions. A total of nine universities, institutes and engineering schools are participating in the complex research task. In spite of considerable research capacities, the research tasks and industrial partnership could be more concise while coordinated, complex development and useage goals of industry simplify the effectiveness and orientation of the research.

Within the Academy, the working group "industrial robots" has been at work since the first half of 1980. It fine tunes the research tasks of cooperating institutes and coordinates them. The emphasis of basic research at the academy is on:

--Sensor systems with processing of sensor information for the control, and

--Control and teaching, including dynamic mechanical models.

For the applied research there result two objectives:

--Control methods and instruction for sensory robots, including processing of sensory information, e.g. with image character, must be worked out. Results should go into production after 1984; partial results, like picture recognition, will be used much earlier. By 1983 a series of sample solutions for robots of the second generation will be completed.

--The second goal is the scientific prototype for high intelligence robots which can act in partly indeterminable conditions. This research will open up new areas for robot engineering by 1985 and create the foundation for the development of third-generation industrial robots. Naturally, the area of robot research at our academy is not completely new. Some research subjects go back some years. Recently for example, our institute successfully defended a state plan on image recognition by industrial robots before representatives of industry and research. In our research area we are linked with the advancing international status, which is to be expanded.

Some physical institutes, especailly the Central Institute for Nuclear Research, have made important contributions to the development of sensors. Overall, the potentials of the physical institutes do not seem to me to be exhausted. Simple and low-cost sensors with robot-specific information processing, methods for positioning in space, including accurate and inexpensive distance measurement, force and moment sensors with adaptability features, and automated, high-precision quality measurement methods are urgently needed. The emphasis should be on the complete process and less on the individual sensor.

I am convinced that an intensive and target-oriented discussion with robotics engineers would open up many additional contributions by our academic institute. The cooperation with those institutes in the working group "industrial robots," which are not participating at present on robot research, could be the first step in deriving such additional contributions.

Engineering for Robots

important for the transfer of research results is an experimental field for industrial robots; an engineering area operated jointly with industry, as empowered by the academy president in his discussion at the 10th Party Congress. Thus, we could examine concrete scientific results jointly for their potential uses, prepare real employment of the results, generate software and derive development requirements for the producing firms.

Expense, Inefficiency Cited

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[Roundtable discussion, recorded by Utz Hoffmann, with research and enterprise engineers Dr Werner Gessler, responsible for procedures in introducing industrial robots, VEB SKET (Ernst Thaelmann Heavy Machine-building Combine), Magdeburg; Gero von Lenski, main department chief for industrial robot development, VEB BWF (Machine-Tool Factory, Berlin); Dr Manfred Schwandtke, director for research and development, VEB ZIM (Central Engineering Enterprise for Metallurgy); and Dr Gerd Stanke, chief, 'Artificial Intelligence' research group, ZKI (Central Institute for Cybernetics and Information Science): "Robots in Practice"]

[Text] Robots weld and grind, they cut, drill, mill, spray and transport. But this alone does not make them universally profitable--expensive as they are. Scientists from Research and Production are trying to give the "steel workers" additional abilities. It is supposed to learn, understand its environment by taste and vision and take over auxiliary work independently. But the robot, too, has its requirements. When grafted to existing technology, it brings little success. Only "robot-friendly" assembly lines make it effective. Often both the technology and the end product itself are changed. Our conversation shows how complicated these problems are for research and practice.

SPECTRUM: In the GDR about 45,000 industrial robots are to be produced by 1985. What will this mean for your operations?

von Lenski: This number will have more meaning if we break it down to the individual economic areas in accord with the definition of robot engineering. In the area of the Ministry for Machine Tools and Heavy Machinery, 9000 industrial robots are to be produced. There is a requirement to use 4000 of these robots ourselves. This is one source for meeting the state demand. At the same time, it is obvious that universal equipment must be centrally produced. Then the users can concentrate on the employment of industrial robots.

Dr Schwandtke: In the industrial area of ore mining, metallurgy and potash, 2000 industrial robots are to be in use by 1985. Up to 67 percent of these will be simple, process-specific robots. Optimization equipment construction units can be useful here. However, the process-flexible robots will be centrally produced since this would overtax the firms. But for the long term, we must produce the assemblies for simple robots centrally as well. Only then can the user put together very profitable robots according to his needs.

Dr Gessler: I think that the numbers should not surprise us. The SKET has a plan for 297 robots by 1985. We broke down the increase to the individual years to 1985 and set up appropriate scheduling. This is always a matter of handling the total process. We already have applications where whole assemblies are produced for use with robots.

SPECTRUM: So central production and local optimization equipment building must run in parallel. What problems will this cause for an academic institute?

Dr Stanke: Basic research needs powerful central partners with their own research and development capacity. In our work on sensor engineering and image recognition, we have had three industrial partners, and it is difficult to concentrate on specific tasks. We are now working out the prototype for the second and third generation of robots. For our partner it will be very difficult to produce robots in large numbers and simultaneously cooperate in refinements and new developments. This is an area for planned work division. Each one should do that which he does best, but in such a manner that the effect will promote the total program.

SPECTRUM: Experiences with microelectronics and computers seem to be the father of all this. The word "assemblies" has already come up. Would it be useful to standardize individual assemblies for the numerous users and producers?

von Lenski: This is being examined by the Agency for Standardization, Material and Goods Testing (ASMW). We just had a discussion on standardization of grasper systems. The ORSTA Hydraulics combine will produce hydraulic assemblies for linear and traversing motions in the prefabricated parts assembly method. The optimication equipment construction can then use simple solution variants. But before standardization, a high reliability of assemblies is important to us.

Dr Stanke: Even the building of our own controls takes a great effort. The developed, universal robot controls are very expensive; they can only be used with process-flexible robots. For the expected 30,000 process-specific robots, we need a modular system of controls. The area of electronics/ electrical engineering must feel highly taxed by this. Previously, almost very university or firm had put together, with immense effort, its own control, since there were no modules available.

SPECTRUM: The president of the academy, Prof Scheler, at the 10th Party Congress, spoke about the establishment of a joint technical center. How far has this project progressed?

Dr Schwandtke: It is moving along well. Last week, we signed an agreement for this center. Academic Combine, "7 October," and ZIM are working out a frame program. With the articulated robot ZIM 10 we now intend to have joint testing of the most different types of application, to develop sensors for robots of the second generation and to prepare information on overall dynamics.

Dr Stanke: Naturally, such a technical center has other tasks. Representative uses have to be documented and users trained. Investigations on the control of automated production sections, on improving the mass/performance ratio and reliability are needed. The spectrum is large; we intend to be a part of this, down to the final product ready for practical use. The work prerequisites prepared by ZIM are indicative of a good start.

SPECTRUM: How can requirements of industry and the potentials of the academy be linked in this type of project?

Dr Schwandtke: The Technical Center fulfills a real need. In recent years we had to come up with pragmatic results, since we needed robots in order to collect some initial, practical experience. The basic research was insufficient then, so that the need to compensate arose. Today, we urgently need prototypes in order to reduce the exceptionally large expense for the periphery of the robot. We will surely not solve any daily problems of production. However, the center will open before ten years. We expect important results by 1985.

Dr Gessler: SKET is also happy about the cooperation between industry and the academy. We are still testing a robot IR2 with a new control, under our conditions with the BWF and the State Numerics Combine. These robots charge several turning machines in small to medium-series production. We could have saved a lot of time and effort if a final solution had been offered; thus we too, are interested in a prototype which we can use directly. You must never forget: All work with us is running under production conditions. Old turning machines are to be prepared for the use of robots. So many problems are coming up that we often do not reach the desired utilization of 16 hours per calender day. It would be ideal for us to take the robot out of the "tooling task" depending on the output, and to set it to the necessary machine according to need. But this flexibility is still in the future.

von Lenski: Our refined and new developed machine tools will be designed with robots in mind. But older machines must be modified so that they can be used with a robot in the combines. Many partial solutions to the problem of robot use are not yet in. We lack monitoring and orientation equipment for the robots; the robot cannot communicate with his environment. But the main problem of manufacturers and users is the constant meeting of the daily production quota. The technical center will certainly help to increase the effectiveness in feeding machine tools. Testing of the end product, deburring, washing and preserving the workpiece could be other jobs to be taken over by robots.

Dr Gessler: We would get by with first generation robots if we succeeded in answering questions of quality control. Just one simple example: It would be desirable to check the turning tool after a certain number of jobs. The use of robots will only be really economical when we have low-maintenance production segments in our firm.

Dr Stanke: This last part should be emphasized. As a contribution to this, we are working together with the "Fritz Heckert" Machine Tool Combine on a method for visual control of cutting tools. Other problems of visual inspection are porcelain sorting, monitoring of textile production, control of tiles and lightbulbs down to automatic fruit sorting.

SPECTRUM: It is expensive and energy-intensive to produce and use robots. Is there yet a design for their economical use?

Dr Schwandtke: The demand for machine tools is very great. Conversely, they are not fully utilized. Often there is a lack of labor force, sometimes continual jobs in very large lots. This problem can only be solved when a robot charges five machines for instance, and thus releases four laborers.

von Lenski: But we must note that a worker today often controls three or four NC machines. Transferring this job to a robot is too complicated. Thus, it is difficult to achieve economic effects. Thus, the robot must also execute secondary functions. And let's not forget that the robot is supposed to perform particularly hard heavy work under poor conditions. This cannot be a matter of the economy alone, since this is a social matter for the state. Nevertheless, we must naturally try to release laborers in order to use the existing equipment on three shifts.

Dr Stanke: It is not the robot in itself which brings the benefit but a high-productivity production lane. It is important to develop some practical examples of this in the GDR.

Dr Gessler: With regard to an economic evaluation we are proceeding from the savings of reduced labor caused by use of the machine. This savings is not just in wages. The economic use of industrial robots will surely be easier to understand here. For each firm, the quotient of investment to goods production is decisive. It should be 1.4 and we are striving for this goal.

Dr Schwandtke: Present amortization times are too long. We intend to reduce expenses for our robots by 30 percent. But we must also recall that in a few years there will be no workforce for many jobs. This is where the robot will find its place.

SPECTRUM: This certainly applies for heavy, physical labor. But how will robots be qualified for general use?

Dr Stanke: Qualification requirements can be increased, but also drop over the short-term. If we ask about economic and social effects of the use of robots, then the social scientists at our academy should be consulted. There are international investigations, but none for the quite specific conditions in our republic. The social scientists, especially economists, must participate with technologists in this decision-making in order to determine clearly under what economic and social viewpoints the use of robots is necessary and expedient. In the Working Union on Industrial Robots directed by Prof Kempe at the AdW [Academy of Science], the sphere of social science has not been represented.

Dr Gessler: In our firm, where the first robot was used, the concept of "job killer"--borrowed from the West--was heard. We explained in advance how the replaced workers would be used; we tried to harmonize personal and societal interests. Only in this manner was the "fellow robot" greeted in the plant.

von Lenski: Nevertheless, in the first phase of robot use, it can happen that the technical worker is undertaxed. This also occurs for other jobs. If we use sensors having the complicated technology of second and third generation robots in the plant, this question will become more important. Even given the conditions in our society, a qualified technician will have to expect that in a few years, a robot may take over his job. The answers can only be complex.

SPECTRUM: But shouldn't high technology make it possible for the technician to communicate with the robot?

Dr Stanke: With the development of sensors, we hope to contribute toward simplifying the handling of robots. The teaching technique must be made simpler and like existing technical language. It should have a form familiar to the robot operator. Work on this is underway at our institute and internationally.

Dr Schwandtke: I would like to call this a user software packet. "Teach-in" is a frequently heard description. But this is not applicable everywhere. For example, we have four robots in the complex. They take 120 different semifinished goods between 6 and 12 m long from a profiler machine and stack them according to various programs. In the teach-in method, this would be impossible. Here, the processes must operate by an algorithm, a task for methematicians who are used to thinking in this manner. Now the operator only need set the length and profile. Everything else is done by the computer and it feeds the instructions to the manipulators.

von Lenski: It is indespensible that the builder be able to have dialog with the machine. Even for machine tools, this tendency is seen. Internationally, CNC machines are offered almost exclusively which the builder programs in situ.

Thus, time-consuming preparation and programming work is eliminated. Here again, the man is overtaxed in conversation with the machine. A negation of the negation--the technician works with a new thing at his old jobsite.

SPECTRUM: How will future users of industrial robots prepare for this new technology?

von Lenski: We are organizing training courses jointly with the suppliers of controls. The territorial organizations are providing aid for the use of robots. In Berlin, this is the Development, Production and User Union (EPAG) directed by the "7 October" combine. Also note the establishment of a central data bank for the use of industrial robots.

Dr Schwandtke: We endeavored to use at least one robot in each plant and to form a team around it. These "nests" are then to help other groups to prepare for the problems of robot use.

Dr Gessler: Magdeburg also has a territorial cooperation between science and production. We are jointly training cadre and preparing for the use of robots in the production of household furnaces.

Dr Stanke: The academy is also participating. We are advising industry through a consultation unit on image recognition for industrial robots and on visual inspection. At the beginning of 1982, we intend to organize an initial, users conference.

[figure captions, in order of their appearance]

Automatic transport chain in the Erfurt Shaping Combine. A charging robot moves large machine parts to the processing machines.

Teacher and students prepare the use of a charging robot in the Engineering University of Zwickau, for the Sachsenring Plant.

A lathe operator of the Leipzig turning machine plant programs the industrial robots for the next shift.

Studies on the R6 robot at the Central Institute for Welding Mechanics, Halle. Here: An attempt at sensor-controlled fillet welding.

The work of the ZKI on image recognition is successful. With a visual image recognition unit, typewriter parts were successfully classified and their location determined. In one research test, the image recognition unit was linked to a PHM 4 robot of the State Robotron combine for an assembly task (see also second title).

Practical example of a charging robot. Here, the clothing worker aligns a sewing robot in the State Clothing Works, Lossnitz.

An IR2 robot in the BWF Marzahn takes parts from pallets and moves them into the clamping device of an NC turning machine.

Series production of the charging robot IR2 S2 in the BWF Marzahn.

In the future, this manipulator will be equipped with three programmable axes. Here: the test stand.

An electrician wiring the robot IR2 S2 in its final assembly in the BWF.

9280
CSO: 2300/107

BRIEFS

PLANNED LIVESTOCK INCREASES--To permit a 1-2 percent increase in domestic consumption of protein-rich foods plus greater export of animal products, livestock breeding as well as crop production must expand this year. The 1982 plan calls for a 2-2.5 percent increase in livestock breeding as compared to 1981. Despite a continuing decline in the number of cows raised privately, the horned cattle herd is to remain at approximately the level of last year. To achieve this goal the large farms will have to make great efforts to enlarge their herds of dairy cattle and improve production of milk and beef cattle. Although it has been estimated that the herd of cows will remain at 765,000 head by the end of the year, milk production is supposed to increase by 40 million liters. The economy is counting on 625 million liters of milk from the combined herds of the coops and the private sector. Raising of beef cattle, under economic conditions more favorable than last year, is to increase from 320,000 to 326,000 tons. Last year there was a substantial increase in the number of hogs as well as poultry. The advance in hog raising is to be maintained and increased by 2 percent. Poultry breeders are expected to increase their gross value of production, calculated in fixed prices, by 500 million forints; they must also adjust to market demand more flexibly. Egg production is to increase by over 2 percent. As compared to 1981, a 3,000 ton increase in breeding of slaughter rabbits is expected. The herd of sheep is to increase by 120,000 head including 80,000 more ewes. [Text] [Budapest NEPSZABADSAG in Hungarian 26 Jan 82 p 1]

CSO: 2500/126

BARTOSZEWICZ-MONKIEWICZ BOOK ON POLISH FOREIGN TRADE REVIEWED

Warsaw SPRAWY MIEDZYNARODOWE in Polish No 6, Jun 81 pp 144-145

[Review by A.Z. of book TENDENCJE I PERSPEKTYWY POLSKIEGO HANDLU ZAGRANICZNEGO [Tendencies and Perspectives in Polish Foreign Trade] by Tomasz Bartoszewicz and Jan Monkiewicz, Wydawnictwo Interpress, Warsaw, 1980, 142 pages]

[Text] The authors have presented in synthetic fashion the most important tendencies in Polish foreign trade and perspectives of its development over the next few years. In the first chapter the authors discuss the assumptions behind and the practice of implementing the principle of state monopoly on foreign trade, the place and role of foreign trade enterprises, and the foreign trade management system. The second chapter covers the role of foreign trade in Poland's national economy, and above all its place in the country's socio-economic development strategy. The final three chapters comprise data from the sphere of Polish trade with individual socialist countries, integration within the CEMA framework (prospects for trade exchange are also indicated here), as well as trade with developed capitalist countries and with developing countries.

The authors' basic conclusion is that Poland's foreign trade entered a qualitatively new stage of development in the 1970's, although various obstacles and limitations can periodically impede the implementation of new trade functions. However, the authors further assert that in the long run the direction of the changes which have been initiated is irreversible, and that the upcoming years will bring a further increase in Poland's share in the international division of labor.

CSO: 2600/301

COOPERATION WITH BRITISH IN AIRCRAFT CONSTRUCTION

Rome AVIAZIONE in Italian Nov 81 p 736

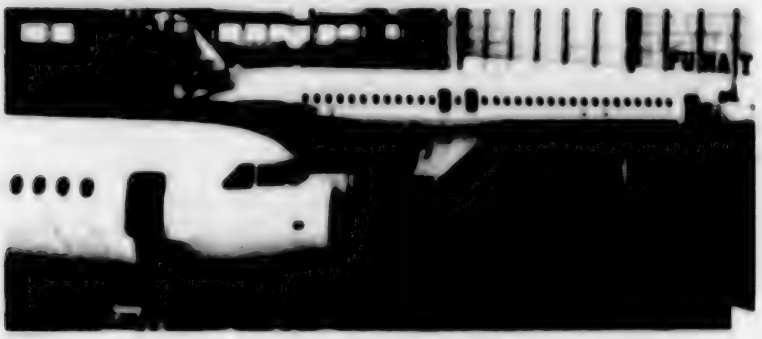
[Article: "The Romanian One-Eleven Program Is Underway"]

[Text] The Romanian aeronautical industry has launched the program for the construction, on license, of the BAC One-Eleven, series 550. The tested medium-to-short range twin jet aircraft will be constructed at a factory in the vicinity of Baneasa Airport in Bucharest. The "roll out" and the first flight of the Rombac One Eleven, series 550 (this is the name of the Romanian version of the plane) are scheduled for the Spring of 1982. The Rombac 1-11, offered in 86, 104, and 119-passenger versions, maintains almost unchanged the characteristics of the English model and it is propelled by two traditional turbofan Rolls-Royce Spey 512-14 DW engines with very low consumption which respond to the requirements of ICAO annex 16 since they use effective silencers without having a negative effect on the services.

According to officials in the National Center of the Romanian Aeronautical Industry, the Rombac program represents one of the major transfers of advanced aeronautical technology and is of essential importance for the long term industrial and economic plans of the Socialist Republic of Romania. The Rombac program, which is currently administered by the National Center of the Romanian Aeronautical Industry, originated with the order of three airplanes from British Aerospace in order to initiate the adaptation of the equipment for production. Next, an order for parts for 22 airplanes in seven lots will complete the industrial transformation during 1986. Then, the production of complete aircraft in Romania will continue in accordance with market demands up to 1990. About half the scheduled production will be intended for the domestic market (the first airplane will go to TAROM, the Romanian government airlines, which already uses BAC 1-11) while the rest of the planes will be sold on foreign markets with prior approval of the British Civil Aeronautics Agency. Moreover, always in accordance with contract agreements, the first of these orders (which provide for the development of three parts of the fusillage, the wings and other important components) was completed in April of this year.

However, it should be mentioned that other units of the National Center of the Romanian Aeronautical Industry in Bacau, Craiova and Brasov are also participating in the construction of the airplane. In addition, Romanian technicians have gone to England to take basic courses in aircraft construction and about 700 Romanian

technicians are employed in the machine design section of the plant. As a result of this most recent collaboration with British Aerospace, Romania has consolidated her trade relations with the industry of the United Kingdom (initiated in 1968) and has acquired licenses for the construction of Islanders and more than 300 of these have been constructed. The photo shows the first two Rombac 1-11 planes being assembled at Bucharest's Baneasa airport--a preview of what the plane will look like when it is completed.



CSO: 3104/102

CHANGES ANNOUNCED IN ECONOMIC DEVELOPMENT PLAN

Belgrade PRIVREDNI PREGLED in Serbo-Croatian 22 Jan 82 p 1

[Excerpts] It is certain even now that during this five-year plan we will have to figure on 348 billion dinars less in investments, or 16 percent less than planned in the Social Plan of the country. This is a 23-percent lower volume of investments in relation to republic and provincial plans. This has resulted not only because foreign sources have "dried up" (foreign investments will account for only 7.5 to 8 percent of total investments, rather than the 17 percent in the last plan period), but also because of the reduced material possibilities in the country.

At a 21 January press conference at the FEC (Federal Executive Council) Spasoje Medenica, director general of the Federal Institute for Social Planning, announced changes and additions to the Social Plan to 1985. Planners now estimate that the social product will increase during this medium-term plan period at a rate of 3.2 percent instead of the 4.5 percent originally planned; an even more modest increase of 2.4 percent is planned for the first two years and 4 percent for the last 3 years.

It is now quite clear that the 5 percent annual increase planned for industrial production will not be achieved; present estimates call for an increase of 3.8 percent in the first 2 years and a 4.2-percent increase in the last 3 years. The most rigorous reduction is in investments; instead of the 1.5 percent reduction originally planned, investments would have to be reduced by 3.4 percent. That is, in the first 2 years the reduction would average 6.9 percent, while in the 1983-85 period they would average about 1 percent. Investment reduction up to now has already lowered the share of investment in the social product from 35.5 percent in 1975 to about 31.5 percent in 1981. In 1982 investments would account for 28.9 percent of the social product. The standard of living is to increase at a rate of 2.7 percent; in the last 3 years of the plan it is now expected to reach this rate, but in the first 2 years it will decline at an average rate of 1.3 percent. In 1981 3 percent more new workers were employed but employment in this five-year period will have to slow down to a 2-percent increase.

Medenica pointed out that the second part of the Plan which establishes the directions and outline of development will probably have to be changed. Some of these changes will certainly follow from the results of the future stabilization program which is now being formulated.

The FEC today revised the plan deadlines, according to which its suggestions will be submitted to the Assembly by the end of September and the changes themselves will be submitted by the end of November (not by 15 May and the end of June, respectively, as originally planned).

Today the FEC also established a program of action in implementing this year's Resolution on Socioeconomic Development. Most of these actions are planned for the first 2 months of this year, such as tasks involving economic relations with foreign countries, investments, credit-monetary policy, market and prices. One of the priority tasks is issuing the balance of payments and foreign exchange balance of the country, as well as the balance of payments positions of the republics and provinces; it is already certain that this job will not be easy, since it involves problems such as compensating organizations for which exports are prohibited, equal treatment of convertible and clearing-account currency, and the very function of the balance of payments and foreign exchange balance.

CSO: 2800/215

BRIEFS

KOSOVO-ARAB TIES--Last year significant preparations were completed for expanding and strengthening [Kosovo] cooperation with a number of Arab countries (Iraq, Libya, Algeria, and Egypt], as well as with some central African countries. One of the important fields of cooperation is construction. The "Ramiz Sadiku" industrial construction combine in Pristina participated in building some facilities in Libya. About 120 workers took part in constructing a $24-million agricultural institute in Garija [sic.] scheduled for completion in June 1982. Preparations are being carried out for work in Algeria which has offered construction of secondary school and faculty centers. Last year [1980] 360 workers from Kosovo (60 nurses and 300 technicians) went to Libya to work. Cooperation with Libya in the health field continues also this year [1981]; Kosovo has promised to send more than 1,000 nurses and other technical personnel. Special attention has also been given to long-term scientific-technical cooperation between the Kosovo Academy of Arts and Sciences and Egypt. The program of cooperation for the next 3 years calls for research in the cultural heritage of Albanian emigres in Egypt and an exchange of experts in medical fields such as pathology, physiology, epidemiology, micro-biology, as well as in the area of agricultural toxicology. [Excerpt] [Pristina JEDINSTVO 31 Dec 81 DELEGATSKE NOVINE supplement p 2]

FOREIGN EXCHANGE FOR FEDERAL USE--A total foreign-exchange sum equal in dinars to 26,411,299,300 dinars has been established for use by the Federation in 1982. It will be divided as follows: for material reserves 2,879,531,600; for federal organs and for carrying out the rights and duties of the Federation 22,652,456,900 for the Fund for Granting Credits for the Faster Development of Underdeveloped Republics and Autonomous Provinces 786,775,100; and for the Solidarity Fund for Non-Aligned and Developing Countries 92,535,700 dinars. The exchange rate is figured at 27.30 dinars to one U.S. dollar. [Excerpt] [Belgrade SLUZBENI LIST SRFJ No 72, 31 Dec 81 p 1883]

EMPLOYMENT IN SERBIA--In the current medium-term plan average annual employment should increase 3.2 percent in Serbia (not including the provinces); this includes a 3.4 percent employment increase in economic sectors, a 1.5-percent increase in non-economic sectors, and a 12-percent increase in the private non-agricultural sector. This represents an increase in employed persons [by 1985] of 425,000 (395,000 in the socialized sector and 30,000 in the private sector); 350,000 would be employed in the economy, largely production trades and technical professions, while about 45,000 would be employed in sectors outside

the economy. The number of persons employed would total 1,717,000 by 1985, while the number of unemployed would decline by about 40,000. Employment opportunities will have to be sought in agricultural development, in small-scale business in the socialized sectors, and in private work. The introduction of shift work and continuous operation is expected to be a major factor in increasing employment. Tax incentives are planned for basic organizations of associated work that introduce shift work; i.e., taxes on income will be reduced by the amount paid workers on second and third shifts and it is also planned that newly employed workers who are working second or third shifts will not have to pay income taxes to the end of 1985. [Excerpt] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 15 Jan 82 p 4]

COUNTRY-WIDE EMPLOYMENT--At the end of September 1981 Yugoslavia had a total employed work force of 5,885,500, or 2.7 percent more than at the same time in 1980. Employment increased in all republics and provinces but faster in the less developed areas and slower in the developed ones. Thus, Kosovo had 5.1 percent more employed persons than a year earlier, Montenegro 4.8 percent more, Bosnia-Hercegovina 4.4 percent more, and Macedonia 3.7 percent more. In Vojvodina employment was up 2.7 percent, in Croatia 2.2 percent, in Serbia proper 2.2 percent, and in Slovenia 1.1 percent. In absolute terms Croatia and Serbia proper had the highest number of employed persons--over 1.4 million each. Bosnia-Hercegovina had 859,000, Slovenia 784,000, Vojvodina 569,000, Macedonia 439,000, Kosovo 184,000, and Montenegro 135,000. These figures reflect only the number employed in the socialized and private sectors, but not farmers (of which there are over 300,00 in Croatia alone). The number of registered unemployed was 10.7 percent higher in Croatia than a year ago, 11.1 percent higher in Slovenia, 15.2 percent higher in Montenegro, 7.9 percent higher in Macedonia, 4.5 percent higher in Kosovo, 4.2 percent more in Vojvodina, 3.8 percent more in Bosnia-Hercegovina, while in Serbia proper the number was 1.7 percent less compared to the same 1980 period; the average increase in unemployed persons was 3.7 percent at the end of September 1981 for all of Yugoslavia compared to September 1980. The average unemployment rate for Yugoslavia was 13.9 percent (39.3 percent for Kosovo, 28.8 percent for Macedonia, 17.9 percent for Serbia proper and for Montenegro, 17.3 percent for Bosnia-Hercegovina, 14.3 percent for Vojvodina, 6 percent for Croatia, and 1.7 percent for Slovenia. [Excerpt] [Zabreb VJESNIK in Serbo-Croatian 5 Jan 82 p 6]

TRADE WITH IRAN--In 1982 Yugoslav-Iranian trade is expected to increase 2 1/2 times, to a value of $500 million. However, expectations will be difficult to fulfill if questions of payment and letters of credit for already agreed-upon Yugoslav exports are not resolved. The Belgrade organizations, "Hempro," "Rekord,", "Rudnap," and the Krusevac enterprise "Miloje Zakic" have had successful cooperation with Iranian partners for about 10 years, but they have recently found themselves in an unfavorable situation. Because of the difficulty of acquiring letters of credit or collecting on bills, they have incurred losses, and finished goods already wait in factory warehouses. Certain contracted business has stopped until this problem is resolved. A solution should soon be found. Three days ago a consortium of eight Yugoslav banks concluded an agreement with the central Iranian bank in which 1981 and 1982 trade questions are to be regulated. The agreement becomes effective on 1 February but the Iranian side will probably issue letters of credit before this date. Business people are still

dissatisfied, however, that no more detailed information has been given on the method of payment. In addition, they are very dissatisfied with the work of the Joint Economic Representation in Teheran, because it has not provided timely information on the economy regarding sales possibilities. Despite all this, however, trade amounted to about $200 million in the first 11 months of 1981, or $60 million more than in the previous year. Yugoslavia exported $114 million (57 percent more than in 1980) worth of goods, while it imported 34 percent more. We export largely paper, tires, meat, iron and steel structures and we import oil, and small quantities of hides, raisins, and chromium ore. [Excerpt] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 14 Jan 82 p 3]

TRADE WITH MEXICO, CARIBBEAN COUNTRIES--In the January-November 1981 period total trade with Mexico amounted to $46.7 million, with Yugoslav exports amounting to $5 million and Yugoslav imports $41.7 million. In 1980 the value of imports was the same, while Yugoslav exports were $1.3 million more. In the same 11-month period [in 1981] trade with Panama amounted to $17.7 million (we imported $13.5 million worth of goods, largely bananas, and exported $4.2 million worth of goods). Total trade with El Salvador was $7.2 million $1.1 million in Yugoslav exports and $6.1 million in imports). This year trade with Guyana is expected to increase, i.e., projects in developing a dairy operation, gold mine exploitation, and an irrigation system are planned. [Excerpts] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 14 Jan 82 p 3]

TRADE WITH EGYPT--In the first 11 months of 1981 total trade value amounted to $211.9 million ($149.1 million in Yugoslav exports and $62.8 million in Yugoslav imports); this is an increase of 6 percent in exports and 24 percent in imports over the previous year. This year we expect to export $200 million worth of goods and to import $70 million worth. [Excerpt] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 21 Jan 82 p 1]

KOSOVO BUDGET--The 1982 budget for Kosovo is 4.6 percent more than last year and totals 11.34 billion dinars, not including the 1.18 billion dinars which represents earlier obligations the federation is meeting for the province to develop the social sectors. Most of the budget consists of supplemental federal funds, amounting to 8.28 billion dinars, while about 27 percent of the budget represents the province's own revenues. These sums are considerably less than requested and a large part of the needs of budget users will not be covered. Non-productive and non-economic investments must be reduced to a minimum and the number of employees in administrative services and SIZ [self-management interest communities) organizations must not be increased. [Excerpt] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 2 Feb 82 p 12]

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FEB. 23, 1982